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TELEPHONY

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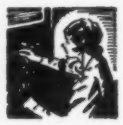

ANSWER TO LADDER PUZZLE. The answer to our ladder puzzle, published in the Feb. 1 issue, is 8.0371 or 23.6729.

However, it took a college professor to work it out. He is DALE C. STRAUGHN, assistant mathematics instructor at Harding College, Searcy, Ark., and the son of HUGH D. STRAUGHN, owner of the Southwest Arkansas Telephone Co., Glenwood, Ark. The senior Mr. Straughn "got stumped in a maze of long equations" when he tried the problem, and sent an S.O.S. to his son, who came through nobly.

Thanks also to A. R. COLEMAN of the Bell Telephone Co. of Canada, Toronto, and LEE O. TRAVER of the Logan Telephone Co., Logan, Kans., for their solutions.

• • •

NUMBERS GAME. A man telephoned The Chicago *Times* recently, asked to talk to a reporter and demanded, somewhat irritably:

"Have you ever tried to look up the number of the United States Employment Service?"

The reporter reached for a June, 1946, directory and turned to page 1,745. There, the eighth listing in column two, he found: "United States Employment Service, see United States Govt."

The reporter followed the directions and looked for it under United States Govt. And there it was, still on page 1,745, but in column four, like this: "Employment Serv. see United States Employment Serv."

The man hung up at that point and the reporter called the Illinois Bell Telephone Co. where a sympathetic telephone operator came to his aid.

After some time, she found the number.

"It's on the bottom of column four, page 1,746, under the Department of Labor," she said.

The reporter called the man back, gave him the information and got this reaction: "Department of Labor, nothing! I want to get unemployment compensation."

• • •

TIGHT SQUEAK. A small boy about 10 approached the manager of a Des Moines, Iowa, hotel in unhappy excitement recently, saying he had lost his pet white mouse in the hotel telephone coin box.

Near tears, the boy explained that the mouse had run down his sleeve and into the coin return slot and finally into the coin box.

The manager called the equally skeptical telephone company which dispatched a repairman. When the coin box was removed, there, sure enough, was the boy's pet.

Stuffing the wee animal into a coat pocket, the lad said "thank you" and went home smiling.

• • •

THAT'S MY HOUSE! E. L. Batdorff, Cleveland *Plain Dealer* reporter in its Akron, Ohio, bureau, called the fire department for the nth time.

"Any fires?"

"Not much," said the fire switchboard operator, "just a fire on Dayton St."

"Not at 1176, I trust," said Mr. Batdorff.

"You guessed it," said the operator.

Damage at the reporter's house was estimated at $1,000. His 11-year-old dog, Heidelberg was killed by smoke suffocation.

TELEPHONY

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IN THE NATION'S CAPITAL

BY
FRANCIS X. WELCH
WASHINGTON
EDITOR

House passes Gwynne Bill with one-year statute of limitation on back wage suits. . . . New book on utility depreciation accounting, "Anatomy of Depreciation," by Luther Nash, published by *Public Utilities Reports, Inc.*, issued.

AS FORECAST in this department several times, the Gwynne Bill, to amend the Wage-Hour Law, appears to be the first definite piece of legislation in the "labor reform" class to get congressional action. By the overwhelming vote of 355 to 56, the House of Representatives, on Feb. 28, passed this bill—primarily on the basis that it would put an end to the controversial portal-to-portal back wage claims.

But Independent telephone companies —especially the smaller companies— will be interested to know (if they don't already know) that the Gwynne Bill restricts other types of suits for back wages, old claims, penalties, etc., growing out of the alleged violation of the Wage-Hour Law. Somewhat surprising to this writer was the final decision of the House to go along with a one-year statute of limitation, instead of three years as recommended by a sub-committee of the House Labor Committee. Your correspondent fully expected the House to cut the limitation period (within which time suits must be brought or else outlawed) from three to two years. But when the house committee, as a whole, cut the limitation to one year even the labor union people were stunned.

An attempt by Representative Cellar (D., N. Y.) to amend the committee's bill, so as to boost the limitation period from one to two years, was defeated by the closest vote of the House, in considering this measure. Even that wasn't really very close, 124-73.

The size of the final house vote—which found only 50 Democrats and five Republicans willing to vote negative—indicates that this measure easily can be passed over President Truman's veto, if necessary, as far as the lower chamber of Congress is concerned. We cannot be too positive, however, that the one-year period of limitation will stick in the bill in its final form. It probably will, but there is still a fighting chance that the more pro-labor Senate will hold out for a two-year period of limitation and thus throw the decision into a conference between the two chambers.

Here is, briefly, what the latest model of the Gwynne Bill provides, as it passed the House of Representatives. The Bill (H.R. 2157) may be divided into two parts: (1) One part deals with certain claims, suits, etc., over alleged wages and overtime compensation, based on activities which were not considered at the time such claims accrued, to be subject to any compensation at all; (2) the second part deals with stale claims arising from alleged violation of various federal labor statutes (including the Wage-Hour Law), and provides a statute of limitation, outlawing such suits not brought within the period of limitation.

Let us further analyze these two parts separately:

Compensatory Time: This first part of the Gwynne Bill lays down two tests for determining whether working activities are entitled to compensation under the various federal statutes providing for the same. These two tests include:

(1) Working activities which are declared to be subject to compensation at regular or overtime rates *by express agreement* between employer and employes. Thus, if a contract between a coal mine operator and the coal miners' union includes a specific provision to the effect that traveling time between the threshold of the employer's property and the place of actual work (portal-to-portal) should be considered as "working time"—that contract provision would control such payment. On the other hand, if the union's contract with the employer made no mention of portal-to-portal compensation, then the situation would be governed by the second test.

(2) Activities which long have been compensated for as "time work" by *tradition, custom, or practice,* within the particular industry or at the time and place of employment. For example, in the tanning industry it generally has been the custom to figure time worked so as to include the preparing of certain tools, putting on aprons and the reverse process of washing up and putting tools away at the end of the day's work. Oyster tongers working on a time basis, in some districts, have had their pay computed from the time their small boats leave the dock until the return — not just the time actually spent toiling at the oyster beds.

Limitation of Actions: The provisions under this part of the Gwynne Bill apply not only to claims arising out of the alleged violations of the Fair Labor Standards Act (Wage-Hour Law) but also the Walsh-Healey Act (controlling wages paid on government contracts), the Bacon-Davis Act (controlling wages on public works), and any other federal statute which might create the basis for a claim for back wages, overtime, etc., and where no specific statute of limitation is otherwise provided. The particular sections of the Gwynne Bill under this heading are as follows:

(1) All such suits must be commenced within *one year* after the cause of action. Those special claims which already have accrued one year prior to the effective date of the Gwynne Bill (if it is enacted) would be given an additional six months period of grace for filing after these two respective periods have expired, all such claims would be outlawed.

(2) *The "good faith" provision.* This provision is to protect the employer against the retroactive effect of changes in administrative policy. If the employer could prove that he acted in good faith, under a reasonable interpretation of the law, at the time an

alleged claim occurred, such proof would be a valid defense to such claims.

(3) *Settlement of claims.* Where an employe has succeeded in reaching a settlement of an alleged claim with his employe or employes—such settlement is a defense to further action brought on the basis of such claims, even though the amount of the settlement might be materially less than the amount claimed. Furthermore, employes having claims of this nature would be prohibited from assigning them or transferring them (or any part or interest in them) to unions or other persons for subsequent prosecution.

(4) *Assessment of damages.* The Gwynne Bill would give to the courts a discretion to assess, in cases where employe claims were validly brought and proved, an amount of recovery less than the statutory damages provision in the Fair Labor Standards Act. This provision is to remedy a decision of the Supreme Court which held that the courts have no alternative except to award employes the full amount of back claims, damages, etc., as provided in the Fair Labor Standards Act. In other words, these statutory damages, which have heretofore been mandatory on the courts, would become—under the Gwynne Bill—merely a maximum, letting the courts use their own judgment in awarding lesser amounts according to the circumstances in individual cases.

• • •

Last week, a bulletin announcement in this publication apprised TELEPHONY's readers of the fact that the state commissions, in collaboration with the Federal Communications Commission (FCC), are going to have at least a two-month study session on Bell System company interstate and intrastate rate structures. There is nothing new to report on this particular development other than the fact that the special staff committee, under the supervision of its engineer, L. T. Hayner, and E. T. McNaughton of the California Public Utilities Commission staff, is going ahead with the work of the special investigation in New York City. Outcome of this probe will probably determine the extent of any interstate long distance toll rate cut. Your correspondent will probably have more on the work of this group before its final report is ready.

• • •

Two other items of interest to the telephone industry is the FCC bailiwick:

(1) The FCC has notified the Lincoln (Neb.) Telephone & Telegraph Co. that it will not lose its exemption as an Independent "Connecting Carrier," under the Section 2(b)(2) of the Communications Act, if it engages in highway mobile radio-telephone service. The FCC's letter, dated Feb. 18, says that the Lincoln company — and the same rule presumably will apply to other Independent telephone companies in similar circumstances—will not even have its exemption questioned although the radio-telephone messages should happen to be received outside of the state of Nebraska. The Lincoln company had suggested that it would challenge calls to make sure that none crossing the state line were accepted. The FCC communication indicates such a drastic precaution is not necessary.

(2) The FCC once more is going after jurisdiction over border city exchange rates. The latest situation involves the Washington, D. C., area and is the result of Bell System intrastate rate increases which have been authorized by the Maryland and Virginia commissions, respectively. The FCC issued an order suspending tariff schedules filed by the Chesapeake & Potomac Telephone Co. of Virginia. These schedules proposed rate increases within the Washington metropolitan area. The action of the FCC is certain to reopen a jurisdictional issue with the state commissions, represented by the National Association of Railroad and Utilities Commissioners. Section 221(b) of the federal Communications Act of 1934 provides that the FCC should not have jurisdiction with respect to rates "in connection with wire telephone exchange service, even though a portion of such exchange service constitutes interstate or foreign communication, in any case where such matters are subject to regulation by a state commission or local governmental authority." Several years ago the FCC attempted to assert similar jurisdiction in the Kansas City area. But a statutory three-judge federal court decided against the FCC's jurisdiction and no appeal was taken.

• • •

A new book on utility depreciation accounting made its appearance in Washington last week. *(Public Utilities Reports, Inc., $5.00 per copy.)* "Anatomy of Depreciation," by Luther Nash, is like fresh air let into a stale room. It is not afraid to come to grips with the basic problems and concepts of depreciation in a manner which is likely to set many a federal and state regulatory expert scurrying to his "notes" or staring out the window in frank disillusion. Nash sums up without fear or favor the various major and minor schools of thought on the question of utility depreciation accounting. He does so in language which even the lay official of a commission or utility company can understand—yet in terms so bold that even the most obscurantist "specialist" cannot avoid.

Why another book on depreciation? It is certainly a fair question. The literature of depreciation is already so top-heavy with tiresome tomes devoted either (1) to replowing the much harrowed ground of the old cost-versus-value controversy (as reflected in depreciation studies), or (2) to plugging some detailed formula or technical approach to the sheer process of computations. Many of these works are exceedingly valuable for their restatement of principles and mechanics. Most of them are pretty heavy reading. Some of them, especially those blessed with the official or semi-official imprimatur, have been somewhat arrogant products of the you-do-as-you're-told school of thought.

Perhaps it is because he has retired from active engineering practice after 40 years of participation in all types of utility operations and rate cases, that Nash approaches his subject with a refreshing spirit of disinterestedness. It is refreshing because so many writers, unconsciously perhaps, seem to try so hard to make depreciation accounting appear to be something esoteric. Nash sails right in and strips down all the theories and sub-theories to two underlying concepts: (1) The straight-line concept (which would assess the life of a $100 desk—say at 10 years—and decrees that $10 a year be set aside, so

NARUC WATCHING RURAL TELEPHONE BILLS

A joint meeting of the executive, legislative, and cooperation committees of the National Association of Railroad & Utilities Commissioners was held in Washington, D. C., on Feb. 20, 1947. Among other resolutions adopted was one relating to rural telephone legislation as follows:

"Resolved*, That the committee on legislation and the legal representatives of the association are charged with the duty of appearing on behalf of this association at any future hearing which may be held on S. 43—80th Congress, or any similar bill, before any committee of Congress, *for the purpose of seeking an amendment prohibiting the federal loaning agency from making any loan for the purchase, sale, construction, operation, or enlargement of any telephone line or system unless the consent of the state authority having jurisdiction in the premises, if any, first is obtained (Italics supplied).

that the desk is retired from the rate base at the end of the term — even though it actually could continue in use for a longer period); (2) the "reserve-size" concept, which looks to post retirement experience instead of depending exclusively on forecast of future age life; it adjusts the size of the depreciation reserve periodically as the basis of actual retirement liability.

Both of these basic concepts are consistent with existing accounting systems. Both use "service life" as a factor. The straight-line method has the advantage of simplicity, acceptance in non-utility accounting practice, conformity with tax practice, and uniformity with federal regulatory thought and the preference of the depreciation committee of the state commission's association. It also has its defects: It is inflexible to interim adjustment; it is based on an assumption of accuracy for age life data which has not been proved (except for certain classes of property which make up a minor part of the total utility investment). It has a tendency to build up excessive reserves at the expense of the customer.

The major purpose of Nash's book is to describe, analyze, and dissect the various systems of depreciation accounting now in use, and to show each in its logical relation to accounting as a whole, which, in turn, should reflect the true financial status of the utility property. He reviews the merits and demerits of all of these—the claims of the proponents, the criticisms of the opposition. He points out for example that a simple working formula can be used to make the "reserve-size" method subject to rigid regulatory control thereby removing one of the principal objections to it — namely, that it resembled the old retirement system in that it lacked specific standards.

One of the most serious questions which Nash raises but does not settle, however, is what the regulatory "authorities" really intend to accomplish through depreciation practice—if they know. If depreciation is to be confused with "amortization"—by automatically returning instalments of capital to the investor, whether he wants to have his equity eased out of the utility business or not—then it is high time the investor found out or is put on notice. If, on the other hand, depreciation is intended simply to reimburse the company for property losses occasioned by operation in public service — that is something else again. In plain words, what do we mean when we even talk about depreciation?

When Galileo recanted, in 1633, under pressure of the then prevailing "authorities," his sound conclusion that the earth moves about the sun, the issue was not settled—regardless of the numerous official signatures and seals upon his "confession of error." It was not settled because Galileo was talking about a demonstrable fact. It simply took a few more years for the demonstration to catch up.

But when the Gregorian calendar, which we use today, was established by order of authority in 1522, it did settle, into an apparently immutable pattern of unequal months of the year, a basically sound computation of time which many calendar reformers have always insisted could have been accomplished much better, in various other forms of distributing days, weeks, months, etc. But the Gregorian calendar stays with us (and probably always will stay with us), not because it is a fact, but because it is a convention. It is a convention which has the sole but decisive advantage (over alternative methods) of universal acceptance, plus the powerfully cumulative effect of traditional usage.

What is depreciation? Is it a fact or a convention? If it is a fact, then all the solemn resolutions of state and federal regulatory commissions, all the learned and positive self-avowed "scientific" and "expert" witness; — even decisions of the U. S. Supreme Court will not alter its nature by so much as a hair. If it is merely a convention, such as the choice between Fahrenheit and Centigrade for measuring temperatures, or the choice between miles and kilometers for measuring distance — then the easiest way is, perhaps, the best way, with due balance between convenience and precision.

It is no answer to say that depreciation is a fact and that depreciation accounting is the convention which measures the fact. Some methods of depreciation accounting can result in retiring investment while plant continues to operate. Any method which sets out to take care of depreciation but ends up merely taking care of amortization is either defective or a scheme designed to bring about eventual public ownership by default. Utility regulation could thereby become the hatchet man for Socialism. Private enterprise money can be scared into other channels under threat of the "vanishing rate base"—if the hatchet men keep it up long enough.

Nash does not dwell on this phase. But it does need dwelling up—especially by federal and state commissions who are apparently hypnotized by the fancy statistics and mumbo-jumbo of the amortization cultists. Such a discussion is needed to clarify the problem, since it is obvious that future public service could be financed on either basis when the difference is clearly understood — even though past financing has been done on the assumption that the customer obligation was limited to the making of reimbursement for the cost of property consumed in his service and without contemplation of a return of capital.

The Nash book ends on a warning note against "excessive refinements," voiced by Supreme Court Justice Jackson in the Hope Natural Gas Case: "If one cannot rely on accountancy accurately to disclose past or current conditions of a business, the fallacy of using it as a sole guide to future price policy ought to be apparent. However, our quest for certitude is so ardent that we pay an irrational reverence to a technique which uses symbols of certainty, even though experience again and again warns us that they are delusive."

$1,000 Rain

With the odds 100-to-1 in his favor, Ralph Edwards lost to the tune of $1,000 in his "Truth or Consequences" radio program recently.

Ralph asked contestant Mrs. Harold Votaw to name any city in the U. S. where she thought it might be raining. If she was right on the first try, $1,000 in cold cash was hers; if not, and a second try was successful, $500, while a third try would net $100.

Mrs. Votaw first named Indianapolis, but a telephone call to the Indianapolis Police Department brought the information that there was no rain; the lady next named Tampa, Fla.— still no rain. But she won $100 on her third try, Portland, Ore.

It was Ralph Edwards, however, who really took the consequences. No sooner was the show off the air when he was deluged by telephone calls and wires from Indianapolis. Seems that although it was not raining in the vicinity of the police station, it WAS raining in other portions of the city. Edwards paid off $1,000!

Fig. 1. Unattended exchange building without windows.

Fig. 2. Unattended dial exchange building with windows.

Fig. 3. Medium-sized exchange building.

CONVERSION FROM MANUAL TO DIAL

By DANIEL SEITZ

THE ultimate goal of all telephone operating companies is, or should be, to connect any two stations of the system in the shortest possible time and at the same time to provide a good quality of transmission. To achieve this dual goal, many telephone companies now are converting manual exchanges to dial operation.

We are all aware of the fact that dial switching always means speed of operation; also, that transmission and service can be of the best type if the plant is engineered and installed properly. In this article, an effort will be made to present several important steps in the planning and completing of dial conversions. If these are followed, much unnecessary subsequent trouble will be avoided.

The first and one of the most important steps is to analyze properly and study the needs of the community where a dial system is to be installed. These estimates often are based only on the past growth and trends of the community in business and population. However, considering the present rapid expansion of telephone service, there is no doubt but that it will be found advantageous to allow sufficient space in the direction of growth in both equipment and buildings in order to permit the required expansion of the storage batteries, charging rectifiers, control equipment and cable terminations on the main distributing frame. By this method, expensive relocations at a later date will be obviated.

The proper selection of housing which will range from the pole mounted equipment of a rural community to elaborate buildings in metropolitan areas is most important. The building, as well as the equipment, should be planned on a liberal basis so as to provide growth of the various types of equipment in a logical manner and in proper numerical order. The aisle space between rows of equipment, especially the power plant and MDF, should be ample for maintenance and testing purposes.

Fig. 1 indicates how unattended dial equipment may be housed in an entirely fireproof building on low cost land. It will be noted that this building does not contain windows. Ventilators located low and near the top together with the door are the only openings in the brick walls. This type building is not recommended for use in areas of relatively constant high humidity or poor surface drainage because these ventilation features are not adequate to prevent cable and equipment failures under these conditions.

★ In this article the author explains the advantages of various type buildings used to house dial equipment; also the tests and repairs that are necessary before a manual plant can be converted to dial operation. The need of coordination with connecting companies and training of employes so they will be qualified to maintain dial equipment is explained. Selection and maintenance of storage batteries and charging facilities also are discussed.

Fig. 2 shows a similar installation except there are three large glass brick windows, one on each of three sides. These windows not only admit light, but the sun's rays coming through them help to dispel moisture. To prevent moisture from penetrating the concrete floor of this building, a six-foot excavation was filled with cinders and waterproofing material placed between the cinders and concrete floor. Insulating material also was placed in the ceiling. This building has two ventilators, one low in the front of the structure and one high at the rear with an exhaust fan to circulate the air. These ventilators may be arranged to be manually operated locally or remote controlled by dialing over trunk circuits from an attended exchange. The ventilators may be opened during good weather when the air is dry, but should be kept closed on rainy or humid days.

Neither cable nor equipment failures have occurred in the building shown in *Fig. 2* during a period of over 10 years. Further, there is no evidence of corrosion or moisture trouble in the making. While in the same neighborhood in a building constructed similar to that shown in *Fig. 1*, cable and equipment failures due to moisture have been numerous. Revolving ventilators placed in the roof of this type building also will prove effective. The elimination of moisture in any central office is most important. Moisture coming in contact with textile insulated cables and equipment always is a potential source of trouble.

A useful instrument for determining the moisture content in the air is the hygrometer. This instrument consists of two thermometers, one of which is equipped with a wick attached to the bulb and extending into a container of water. The temperature reading on the one kept wet will be lower than the dry bulb. This difference in reading between the two thermometers at a given temperature on the dry bulb will indicate the relative humidity present as well as the dew point. For example, a dry bulb reading of 70 and wet bulb 62, a difference of 8, would indicate humidity 64 per cent. A reference chart should be provided so that dry and wet temperature readings may be quickly converted into humidity or dew point readings.

Desiccants such as calcium chloride, etc., have a certain amount of moisture absorbing properties and may be used to advantage. Every effort should be made, however, to design and construct a type of building which will be free of moisture. The building should first be functional, although appearance also must receive consideration. This is especially true in communities where the center of telephone population is located in fine residential areas. In such cases, the correct type of building properly located will help create and maintain favorable public opinion of the company.

The small building *(Fig. 2)* will prove satisfactory in most rural areas where unattended dial systems are installed and office space is not required.

Fig. 4. Large exchange building with office space.

Fig. 5. Large exchange building.

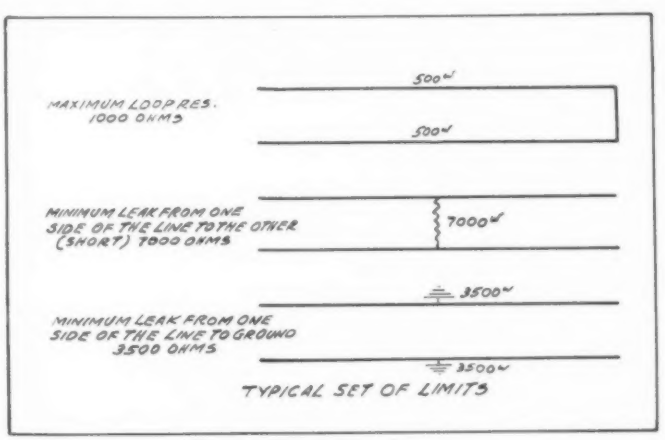

MAXIMUM LOOP RES.
1000 OHMS
500
500
MINIMUM LEAK FROM ONE SIDE OF THE LINE TO THE OTHER (SHORT) 7000 OHMS
7000
3500
MINIMUM LEAK FROM ONE SIDE OF THE LINE TO GROUND 3500 OHMS
3500
TYPICAL SET OF LIMITS

Fig. 6. Typical line limits for dial operation.

Figs. 3, 4 and *5* show buildings suitable for larger installations. Architecturally they are styled so that they do not prove objectionable in residential sections. Necessary office space for collection of bills, information, etc., also is provided in these buildings.

Three factors vital to the operation of any telephone

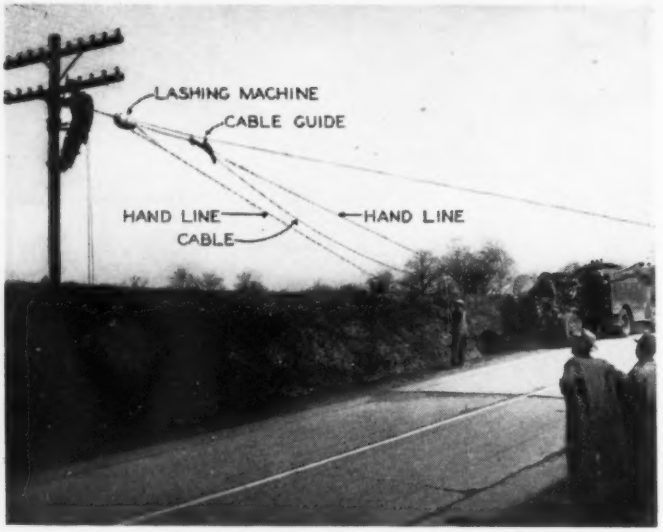


Fig. 7. Installing aerial cable by the lashing method.

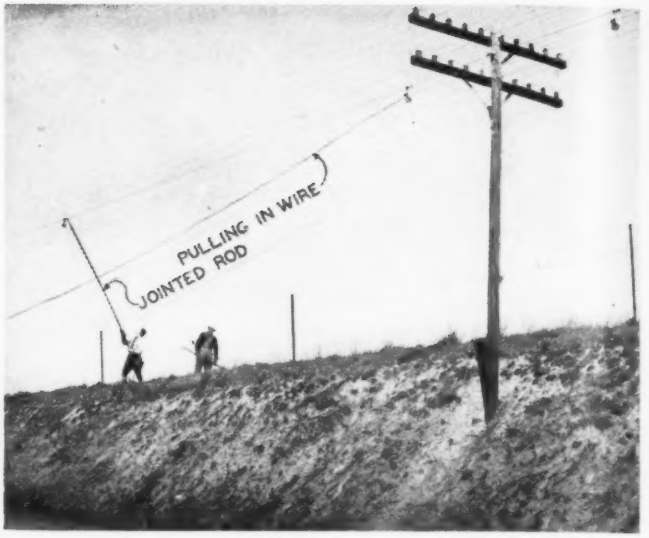


Fig. 8. Pulling-in block being attached to strand by use of jointed rod.

system are: Resistance in the line, resistance across the line, and resistance between the line and ground. The tolerances of these factors are more critical in dial operation than some types of manual systems, especially magneto. Therefore, a cut-over from manual to dial never should be made until the following tests have been completed. These tests should be made during a rainy or wet period and any faults should be corrected so that lines conform to the specifications of the equipment manufacturer.

Test 1: Insulation tests on all lines. These may be made with a voltmeter if it has the proper sensitivity. Two ranges, 20,000 and 100,000 ohms, are preferred. Another method is to use a Wheatstone Bridge or "Bridge-Meg." The latter proves ideal because it has a wide range of 1/100 to 100 megohms.

Test 2: Resistance tests may be made with a voltmeter, ohmmeter, Wheatstone Bridge or "Bridge-Meg." The latter two are recommended because they are more accurate than the voltmeter or ohmmeter.

Test 3: Breakdown tests, if required. The "Bridge-Meg" also will do this job.

It is, therefore, possible to make all three tests with the "Bridge-Meg" instrument. There are several types of equipment and a wide variety of building designs which may be considered, but these tests mentioned above are a "must" if we hope to have a trouble-free plant after the cut-over.

Fig. 6 shows a typical set of limits for a particular dial installation and does not apply to all dial systems. This will, however, indicate why the three tests referred to are vitally important, must be made and the faults corrected prior to the cut-over. Where the maximium specified loop resistance is 1,000 ohms we could have approximately any of the following:

3.7 mi. of 24-ga. cable
5.9 mi. of 22-ga. cable
11.7 mi. of 19-ga. cable
18.0 mi. of 109 iron wire

The loop resistance of cable may be calculated, but open wire circuits, especially iron wire, should be measured.

Low insulation on open wire loops, open wire through trees, and leaks across insulators on open wire during rainy weather are common causes for shorts and grounds that will measure less than the allowable minimum for successful dial operation. These conditions must be cleared. Replacing open wire with cable is very often the most practical way to solve open wire troubles.

Modern up-to-date cable installation methods always should be used. *Fig. 7* shows a 25-pair cable being placed by the lashing method for the purpose of eliminating the two cross arm open wire lines. The cable mounted on the trailer is towed by the truck. The lashing machine and cable guide are attached to the trailer by hand lines. As the truck moves along, everything follows as a unit and

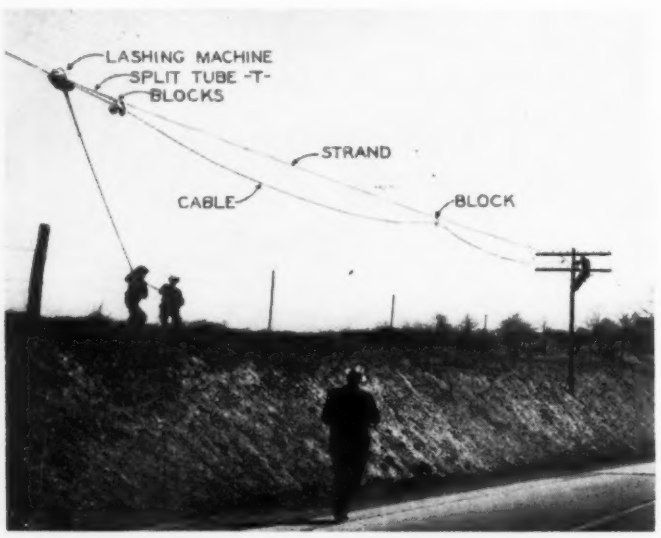


Fig. 9. Hand power used for pulling cable lashing machine.

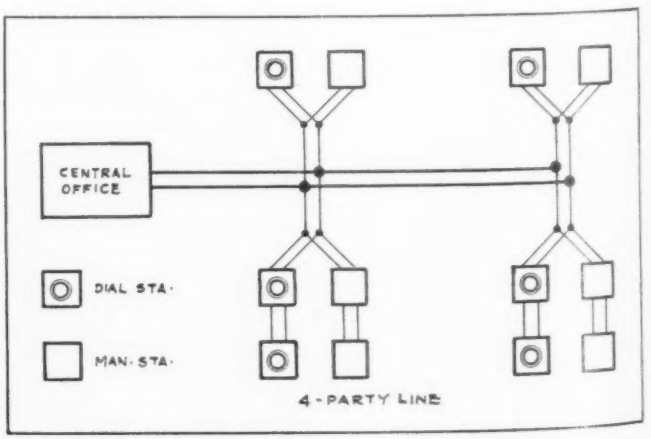


Fig. 10. Party line arrangement for use during cut-over.

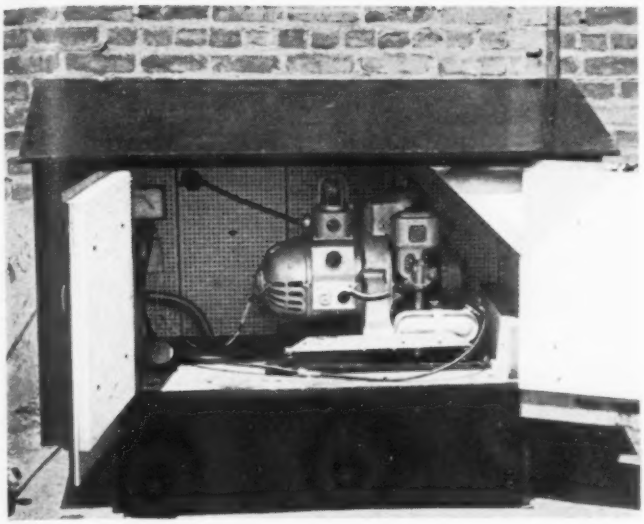


Fig. 11. Emergency power generator of a size suitable for use in small exchanges.

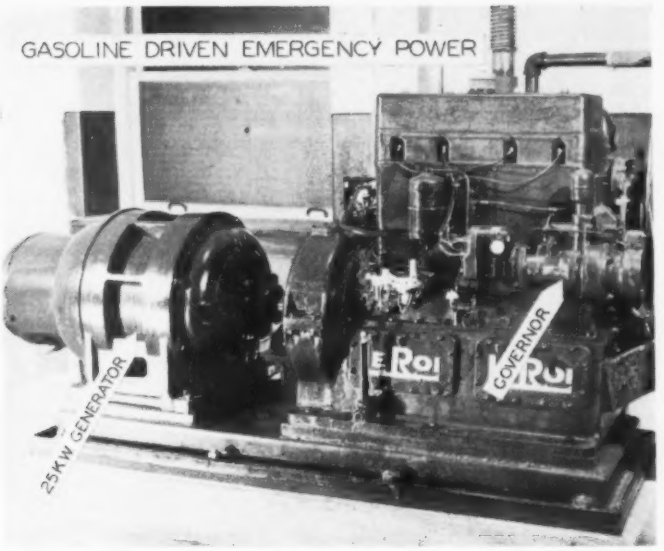


Fig. 12. Gasoline engine driven emergency power generator for use in larger exchanges.

in proper sequence. Where trees or other interference prevents placing the cable by the above method, it will be necessary to pull in the cable through temporary cable rings.

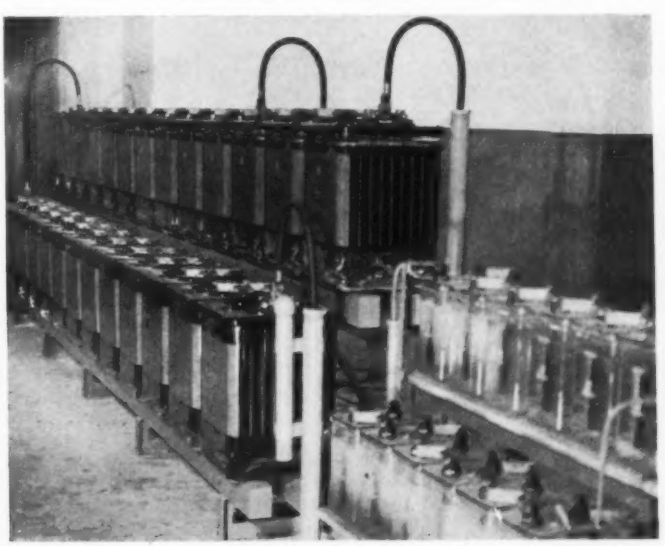
Fig. 8 shows a specially constructed block being attached to the strand by the use of a jointed rod with a fitting at the top, so arranged that after the block is in place a lever is pulled down which locks the block to the strand. This locking device is designed to release when the split flanged tube *(Fig. 9-T)*, which is pushed along the strand by the lashing machine, comes in contact with the block. In this manner, the blocks in each span are all pushed to the distant pole and removed. The locking device will only open due to pressure from one direction. They are, therefore, placed so that the cable being pulled in one direction will have a tendency to tighten. The lashing machine is pulled in the opposite direction and as it comes in contact with the blocks it opens the lock. The blocks are open on one side so that whether a rope or wire is used for pulling in the cable, it is placed in the pulleys by using the same jointed rod. Aluminum construction is light in weight and easily handled on the rod. The blocks are spaced so that each carries approximately 50 pounds of cable.

Nationwide operator toll dialing is definitely in the making. Due to the anticipated rapid expansion of dial service by Independent companies, the problem of coordinating the introduction of dial service between a Bell company and its connecting companies has become increasingly important, particularly from the standpoint of transmission and the expansion of the plan of operator toll dialing. It is essential, therefore, that negotiations concerning inter-office trunking between contemplated connecting company dial replacements and Bell central offices be started well in advance of the actual time when definite information is given to the manufacturer for the preparation of a proposal. This action may avoid extensive changes in the proposal, speed up engineering and manufacturing intervals and will, in general, give the Bell company the opportunity to review its requirements and secure a place on the equipment delivery schedule of the Western Electric Co.

In the conversion of connecting company offices, there will be cases where it will be necessary to have the Bell company install terminating equipment such as composite signaling circuits, repeating coil groups, toll line ringers and testing circuits for Bell owned or leased inter-office trunk groups. These requirements definitely should be known during these early negotiations in order that the necessary floor and frame space may be considered in the connecting company's building and equipment plans.

Furthermore, when engineering the inter-office trunking

Five frequency harmonic rotary ringing machines.



Modern 48-volt sealed glass jar type storage battery installation.

to the Bell office, often it is found that requirements necessitate the development of new or the extensive modification of existing standard circuits on the part of the Independent as well as the Bell equipment manufacturers. This same requirement may have to be met in those cases where the connecting companies have good reasons for considering the installation of types of dial equipment with which the Bell company is not familiar, and for which standard terminating circuits have not yet been developed. In such cases, intervals of a year or even more may be required for the laboratory work, manufacture, installation and testing of equipment prior to the cut-over date.

The installation and testing interval should also be closely coordinated between the two operating companies so as to provide sufficient time prior to the cut-over so as to thoroughly test the inter-office trunks over the outside plant facilities assigned for permanent use with the particular trunk group, and eliminate any possibility of irregular circuit operation.

There are many Independent exchanges which will, according to the fundamental toll plan, be connected to the inter-toll network at the Bell toll center. In order to give the proper supervisory features to the distant toll operator when dialing direct over the toll line, the equipment at the community dial office should provide visual flashing busy signals. The line busy signal should be a 60 IPM flashing supervisory signal superimposed on the usual 60 IPM tone. The "all paths" busy signal also is desirable and where provided should be a 120 IPM flashing supervisory signal without tone.

Based on past experience, when operating small unattended dial units, it is considered advantageous to the connecting companies to include in their conversion units equipment for verifying busy dial terminals from the toll center or centers as may be required. The equipment involved is comparatively simple and inexpensive when installed at the factory as a part of the initial units. This equipment also fills a very essential service need in periods of emergency by enabling the operator to cut in and talk to subscribers who are conversing over a dial connection. Practically all of the Independent manufacturers offer this equipment on an optional basis.

When an Independent company's proposed dial office requires toll switching and recording trunks to either their own or to the Bell toll center, a material gain in transmission can be obtained by the provision of trunk circuits and switches designed to feed 48-volt battery through special repeating coils to the dial subscriber on both originating as well as terminating toll calls.

Coin box service equipment is fairly well standardized in the small dial units. The all-relay and the switch type dial equipment used by the Bell company and those supplied by Independent manufacturers utilize the dial post payment scheme for handling this service. In the case of toll calls originating at the dial station, a splash of tone is transmitted over the trunk to the distant manual switchboard and is heard by the operator as she inserts the cord in the trunk jack. If there is a question concerning the identity of the call, the "splash" or the short interval of tone may be checked by withdrawing and then reinserting the plug.

With the increase in operator toll dialing and its future planned extension, it is necessary that numbering and codes used for dialing be coordinated carefully. It is suggested that the selection of all numbering plans be reviewed with the Bell company so that the ultimate plan for operator toll dialing can be taken into consideration. These numbering plans now are in the process of being developed in the Bell System.

Conversion projects where the manual equipment must be maintained in service until the moment when the actual cut-over takes place often present difficult problems especially if the method of ringing the subscriber is to be changed and both the old and new instruments must be connected across the line at the same time.

A good condenser in series with each magneto instrument usually takes care of the magneto system, and instruments on manual systems with harmonic ringing may be replaced with dial equipment and the old set removed, provided that the frequencies and assignments remain the same. However, in the event that both instruments must be connected until after the cut-over, any faults traced to the protector, inside wire or manual instrument must be cleared. Faulty condensers with partial short circuits should be replaced because they are likely to break down under dialing conditions.

Dialing difficulties also may be experienced on party lines where the combined capacities of the old and new instruments across the line impede the dial impulses. This condition, together with any appreciable leaks across the line, will make accurate dialing impossible.

Fig. 10 indicates such an arrangement. The squares with circles inside represent dial telephones and those without circles are manual stations. During the conversion period and until the manual sets are removed after the cut-over, this four-party line with two extension stations would have 12 instruments across the line. Condensers of suitable capacity should be connected in the manual instruments.

If the manual PBX switchboards are in good condition and are to be continued in use, dials, keys and associated equipment should be installed well in advance of the cut-over so that ample time is allowed for testing and proving in their operation. The importance of adequate ringing power and battery supply should not be underestimated because on these depend the entire exchange operation.

Small offices may depend on vibrator type ringing machines in duplicate, operated from the storage battery while large plants will require motor driven machines.

Duplicate ringing machines should be provided, one operated from commercial power and the other by storage battery, with automatic switching so that a transfer from one machine to another can be made in the event of power failure.

Sealed type batteries with a full floating automatic charging system are desirable, charged either from a rectifier or a diverter pole generator.

As previously mentioned, the ringing current supply really depends on the storage battery and the storage battery on the commercial power supply. Therefore, it is important that we provide an emergency power source even with the present reliable commercial power available in most localities. The capacity of the emergency unit depends on the size of the plant.

Fig. 11 shows a gasoline engine driven generator unit mounted in a soundproof housing so that it may be placed outside the exchange building to comply with fire insurance and other regulations and yet not annoy persons living in the same vicinity. This unit starts automatically when a power failure occurs.

The following are some of the specifications available in emergency power units:

(1) Output capacity from 500 to 5,000 watts.
(2) Single cylinder engine up to 2,500 watts.
(3) Two or four cylinder engines up to 5,000 watts. There are two mufflers, one attached to the engine permanently and a second attached to the first by flexible tubing (two in series). This cuts the noise down to a minimum.

(Please turn to page 32)

BELL 1946 TELEPHONE GAIN TOPS 3 MILLION

IN NO YEAR since the telephone was invented has there been such a remarkable increase in the amount of telephone service furnished to the American people as in 1946, President Walter S. Gifford stated in his annual report to AT&T stockholders for the year 1946.

Over seven billion more calls were handled in 1946 than in 1945. This was more than the total increase for the preceding five years. The net gain in the number of Bell telephones was 3,264,000, or more than twice the gain for any previous year. Since the beginning of 1946 additional telephones have been installed at a rate averaging more than 25 a minute every working day, and since VJ-day we have added nearly as many telephones as there are in all of Great Britain, Mr. Gifford said.

"Achievement of this kind reflects the skill, energy and determination of the 617,000 people working together in the Bell System team. What has been done has not been done easily, but in the face of many problems. Hundreds of thousands of new employes have been trained in telephone work. Lines and switchboards have been loaded to the utmost to extend the telephone's usefulness to as many customers as can be served. In many places where the volume of calls has placed a particularly heavy burden on available facilities, special temporary measures have been introduced to get calls through as swiftly as possible. In the manufacture of telephone cable and apparatus, it has been necessary to overcome serious difficulties caused by the persistent scarcity of certain essential raw materials needed in large quantities.

"Notwithstanding those problems, the men and women of the Bell telephone companies have given more service to more people than ever before and the quality of service generally has been good. . . .

"More than 80 per cent of the two million people who were waiting for Bell telephone service at the start of 1946 had been cared for by the year's end. In addition, the system was able during the year to take care of more than 70 per cent of all new applications received. Yet the total number of new requests for service during 1946 was so great, (there were more than five million) that at the beginning of 1947 there were still about two million people waiting for service. . . .

"Two other factors have been of fundamental importance in helping to meet the postwar challenge. One is the continued cordial relationship and effective cooperation between the Bell System and the 5,900 independently owned connecting telephone companies which serve about 5,900,000 telephones throughout the United States. The other is the understanding attitude of telephone users. As during the war years, we have done our best to keep the public informed about telephone problems and progress, and the friendly response and cooperation of our customers have been of tremendous value in helping telephone people give better service than would otherwise have been possible," the AT&T president said.

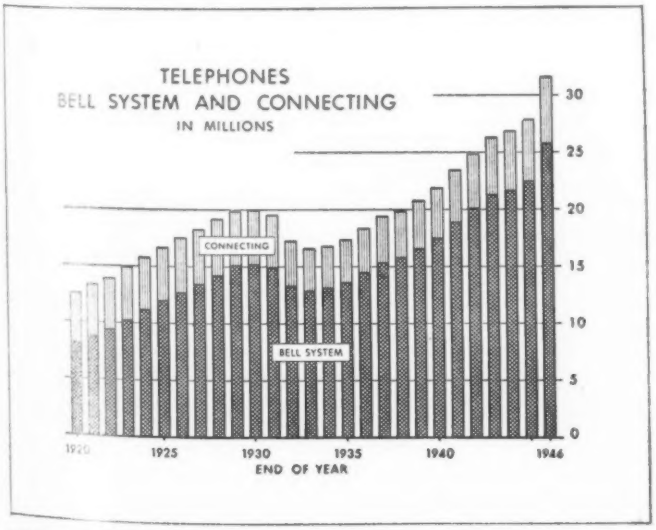
Earnings, Expenses Up

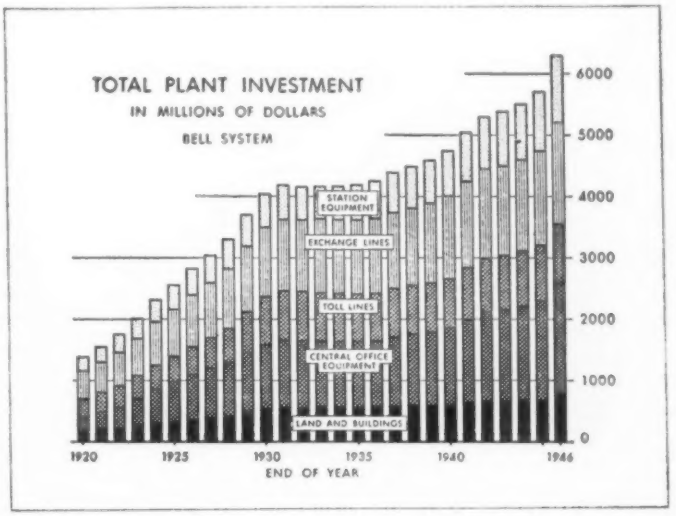
Bell System operating revenues in 1946 were $2,093,665,000, an increase of $162,775,000 or 8.4 per cent over 1945. Operating expenses, other than taxes, increased $316,843,000 or 24.9 per cent, due mainly to increases in wages and in the number of employes needed to keep pace with the increased volume of telephone service. Total income available for interest and dividends amounted to $257,382,000, which was $26,977,000 more than in 1945. However, 1946 income was increased by federal tax refunds arising from carrybacks of tax credits for certain of the Bell System companies which are effective only for that year. Excluding these tax refunds, earnings in 1946 were at the rate of only 5.7 per cent on the total capital invested in the business. Interest charges were reduced by $4,147,000.

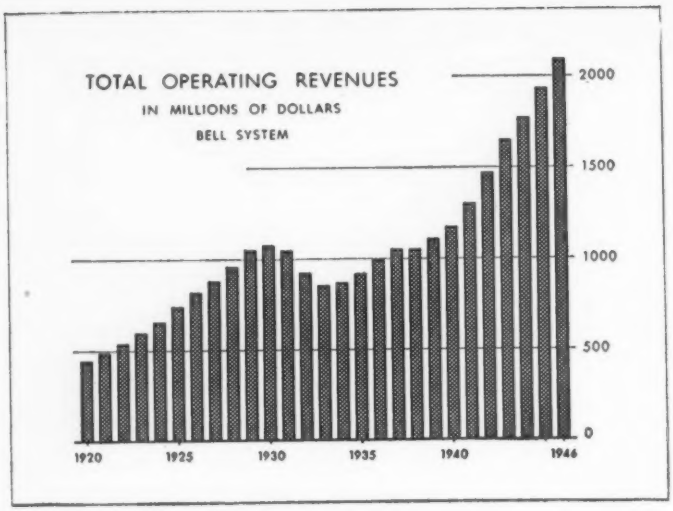
Consolidated earnings applicable to American Telephone & Telegraph Co. stock were at the rate of $10.23 per share of which 73 cents resulted from tax refunds. This compares with $8.93 in 1945. Earnings of the American company by itself, which do not include undistributed earnings of its subsidiaries, amounted to $9.42 per share in 1946 and $8.66 in 1945.

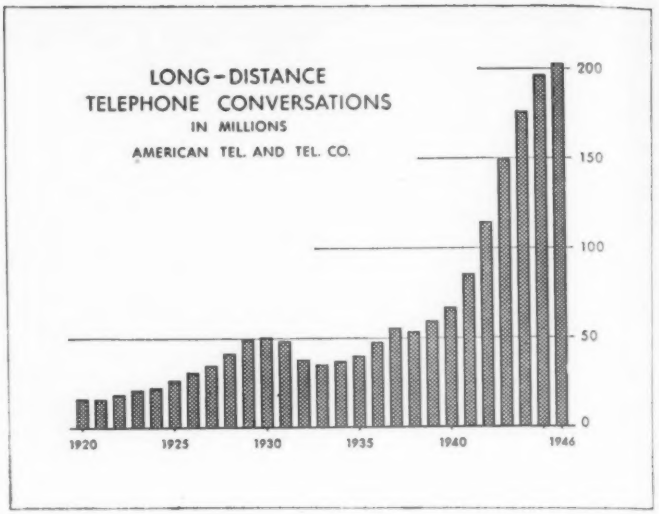
"Although 1946 dividend requirements were covered, earnings were below the average of the last 25 years despite the unprecedented volume of business and overloading of the plant. They were, in fact, only slightly better than during the war period of 1942-1945, when, with the increase in federal tax rates, earnings on invested capital averaged only 5.5 per cent, the lowest in the history of the system except during the worst years of the depression in the early 1930's.

"Since the close of the war, operating revenues have continued to increase, but the increase has been more than offset by increased operating expenses, chiefly in pay rolls. As a result, the ratio of operating expenses, before









taxes, to revenues is now higher than at the beginning of the war. And while federal tax rates on income are lower than during the war period, they remain much higher than in prewar years.

"Federal excise taxes at wartime rates paid by the users of telephone service, which are not in the companies' accounts since they are included as separate items on customers' bills and are remitted to the United States Treasury, amounted to about $320,000,000 in 1946. These taxes alone greatly exceeded the system's total income available for interest and dividends. Taking into account also taxes paid by the companies themselves, the cost of telephone service to the customer in 1946 included for taxes an average of $24 per telephone, and the total paid for taxes was more than twice the amount provided for a return to those who have furnished the money to build the lines and equipment which the customer uses.

"For the 25 years that have elapsed since the present dividend rate was established, consolidated earnings applicable to American Telephone & Telegraph Co. stock have covered the dividend with a small surplus which, on the average, has amounted to about $1.65 per share, per year. To obtain this rate of earnings, the system before the war earned substantially higher amounts in years when business activity was at high levels. There are ups and downs in the business cycle, and to insure that the Bell System companies maintain their ability at all times to render the highest quality of telephone service to the public, they must have a margin of earnings in good times which can be carried forward against those years when business is at lower levels. This margin of safety in earnings is only a small fraction of the customer's telephone bill.

"Looking back over these 25 years, the expansion and improvement in service have been outstanding. The total amount of service rendered by Bell System companies has increased several times over. Speed and quality of the service have improved enormously and developments in the art which have lessened the cost have made possible substantial reductions in long distance rates resulting in current savings to the public of over $375,000,000 annually.

"The cost of furnishing local service tends to increase with growth and the resulting greater complexity of local telephone plant. Nevertheless, over the years, through constant advances of the telephone art and improvements in operating methods, the system companies have been able to furnish a substantially more extensive local service without general increases in local rates since the readjustment period following the first World War.

"However, World War II started another cycle. Just as prices for practically everything around us have risen in recent years, so has the cost of providing telephone service. The cost of labor has increased substantially and so has the cost of materials. Wages alone in 1946 accounted for approximately 58 per cent of all telephone operating expense, including taxes, as compared with about 48 per cent in 1945.

"With the current rate of earnings below the average of the last 25 years, many of the Bell companies, faced with sharply increased costs and with the need to secure new capital to expand their plant, are finding it necessary to ask regulatory bodies to approve increases in telephone rates. Increased rates amounting to about $12,600,000 annually have become effective in eight states, in three of which the increases are effective under bond pending final decision by the regulatory authorities. Applications for rate increases have been made in 16 additional states and similar applications are planned in a number of other states where earnings are low. To secure the capital essential to insure a progressive, orderly development of the telephone system which always has rendered the finest service in the world, rates that will produce adequate earnings are required," Mr. Gifford stated.

Record Telephone Gain

There were 25,709,500 Bell System telephones in service at the end of 1946 compared with 22,445,500 at the end of 1945. Currently the rate of gain is close to 300,000 per month.

The number of toll and long distance conversations in 1946 was about 1,771,000,000 or 16 per cent above 1945 and is more than double the number in 1940.

Plant and Facilities

Total expenditures for new construction were $690,000,000 in 1946, compared with $255,000,000 in 1945 and $170,000,000 in 1944. Local exchange plant construction, including installation of equipment at customers' premises, accounted for $530,000,000 of the 1946 expenditures and $160,000,000 went into additional toll and long distance circuits and associated switching equipment.

Investment in plant at the end of the year totaled $6,294,419,000, an increase of $592,363,000 during 1946. Depreciation and amortization reserves were $2,225,415,000, or 35 per cent of the plant investment.

Bell System Financing

Capital requirements of the Bell System in 1946 were greater than in any previous year. More than $550,000,000 of new capital was obtained, practically all through the sale of debenture issues. The AT&T in July sold $125,000,000

(Please turn to page 34)

THE OPERATOR'S CORNER

BY
MAYME WORKMAN
TRAFFIC
EDITOR

THE proper maintenance of rate and route books is a problem in most central offices. Constant use of these books soon causes them to become worn and soiled.

Recently a "plastic protector" came to the writer's attention and it seems to be an ideal solution to an old and common problem. The use of this cover has been recommended to several Illinois telephone companies and they are well pleased with the protection they afford.

The covers are called "Oxtox Plastic Protectors" and they can be secured from the John H. Oxley Co., 8 Church St., Watertown 72, Mass.

The plastic protectors come in stock sizes, open end or side, with or without punching to fit three-ring loose-leaf binders.

Special sizes made to order, also may be obtained, any size from 2 x 3 to 8½ x 11 in. In ordering the plastic protectors, size of paper to be accommodated should be specified. Also, whether "side" or "end open" is desired. A sample for punching also should be furnished.

In making service surveys in central offices, it is the writer's responsibility to check rate and route books and operating practices, to see that they are complete and legible. Therefore, she is aware of the need of a protective covering for toll rate and route books.

Protective coverings cannot be supplied for all books used in the traffic department as this would be too costly. Operators should exercise care in the use of these books and should refrain from marking them with pencil tracings, etc.

When an operator finds a torn, marred, or missing page in a rate and route guide, she should convey this information to her supervisor or chief operator in order that the necessary replacement may be secured.

If special rate and route books are prepared, the chief operator should make certain that these records are kept up-to-date.

If each individual operator will do her part in using rate and route guides with care, it will prolong the life of this material and will lighten the task of looking up rates and routes. Soiled and worn sheets retard the work of the rate and route operator.

Questions from Illinois Operators

(1) What should an operator say when a subscriber calls by name?

(2) If the number is not given, how should the operator proceed?

(3) If a subscriber has more than one telephone and some lines are out of order and the others are busy, what report should be given to the calling party?

(4) What phrase is used when a telephone has been temporarily disconnected?

(5) How is a cord clip used on a multi-switch connection?

Answers to these traffic questions are presented on page 26.

BEST STORY OF THE WEEK

The younger generation catches on fast, particularly if reared in a family-operated telephone exchange, B. Richardson, telephone engineer of the Oklahoma Corporation Commission, says.

He recently was in a small Independent telephone company operating room where the nine-year-old daughter was presiding at the switchboard.

"WH your party at Enid," said the girl to a patron who was putting in a long distance call.

"Why, Audrey, you shouldn't say that. You should say, 'We now have your party at Enid'," gently protested the mother.

"They might just as well learn what it means now," replied the daughter, and the call was completed as expeditiously as if an experienced operator had been at board.

Editorial Asks Cooperation On Party Lines

With party lines now loaded to capacity, a plea for cooperation by the public recently was made in an editorial published in the Wilkes Barre (Pa.) *Times-Leader*. The editorial said, in part:

Lengthy telephone conversations by individuals and series of calls from one home are entirely out of order. Actually, each household is entitled to 15 minutes out of an hour and no more. If additional time is taken up, it is at the expense of others who are paying for service.

Frequently, the offenders are adolescents who think nothing of hanging on to a line for a half hour or even an hour at a stretch. Housewives, particularly those with little to do, also are inclined to while away the hours in this manner. There is no objection to this on private lines since they tie up only their own facilities, but there is no justification for it on party lines when it interferes with others.

Prolonged conversations, usually about trivialities, are extremely aggravating to subscribers who may have important business to transact. At certain times of the day, conversations should be limited to five minutes. This especially is true the first thing in the morning, around noon and between 6 and 9 o'clock in the evenings.

There have been cases reported where party line subscribers have held lines even in emergencies when doctors were wanted. In one instance a mother, wishing to summon a physician for her child, unconscious with convulsions, was forced to walk almost a half mile to place a call at another telephone when gossipers refused her appeal to use the line for not more than a minute. This is inexcusable.

Another angle to consider is the unnecessary load that is placed on crowded exchanges. When lines are tied up, outsiders, calling the numbers, dial in vain repeatedly, thus throwing a heavy and useless burden on the central office, interfering with service generally.

The situation calls for common courtesy. If the ordinary rules of etiquette are applied, they should be adequate during this period when the telephone company is unable to meet the demands upon it because of the shortage of materials. This won't last indefinitely, so let everybody cooperate in the spirit of good neighborliness, if not for the sake of good manners.

THE PLANT MAN'S NOTE BOOK

BY
RAY BLAIN
TECHNICAL
EDITOR

IN THE January 25 issue, we registered a "gripe" regarding a story in *Coronet* which referred to telephone operators as "hello girls." We contended that "hello" was an obsolete expression and out of place in the telephone industry.

We now are informed by Harry F. Bossert, Signal Corps engineer, that the word "hello" was coined by Thomas A. Edison and used extensively by him for telephone testing. We do not doubt this statement and are sure that it served this purpose well in its day. However, when testing on a line we prefer to repeat 1, 2, 3, 4, nuts; 1, 2, 3, 4, nuts.

• • •

According to *This Week* magazine, nearly 7,000,000 copies of the New York telephone directory are distributed annually to the city's five boroughs. It takes 90 miles of cheesecloth to bind the 9,000,000 lbs. of paper soaked with 62 tons of ink for the winter-spring edition. This edition, if placed end to end, would reach from New York to St. Louis. Delivery of the Manhattan directory alone requires the services of 330 men and 30 trucks for three weeks. The salvage of 7,000 tons of used directories bring $100,000 per year on the wastepaper market.

The above item was published in Dec. 28, 1946 issue of TELEPHONY. Through error we printed 7,000 instead of 7,000,000 copies. This regrettable error prompted James McD. Craven, an analyst in the public utilities department of Standard & Poor's Corp., New York City, to send us the following letter:

"Being a statistician, I was greatly intrigued by the great weight of the New York City telephone directories, as reported in your issue dated Dec. 28, 1946. According to your article, some 7,000 copies of the directory weigh about 1,300 lbs. apiece, not counting the 62 tons of ink. The books salvaged are even heavier, averaging around a ton apiece, or more perhaps.

"All of which reminds me of Mark Twain's reputed remark that there were three kinds of liars: Plain ordinary liars, d--n liars and statisticians."

Although we know that telephone directories are growing rather bulky these days, we are sure they have not yet reached these proportions.

We are assured by the advertising and general information department of the New York Telephone Co. that the item as now printed is correct; that the annual delivery figure for the semi-annual issues of the seven (five alphabetical and two classified) directories is *seven million.*

• • •

We often wonder why someone does not develop and manufacture an all-aluminum operator's chair. This type chair should be both light and durable.

• • •

A completely automatic fire and cold alarm system appears especially suited for use in telephone exchange buildings. This system consists of a compact control unit, to be wall-mounted in any central area, plus a series of "detector" thermostats placed in the areas to be guarded. A green light on the control panel indicates the system is "on guard."

Whenever a thermostat detects an abnormal temperature, it instantly sends a warning to "control center." At once, a red light flashes on, a loud bell rings, and the indicator needle on the meter points to the exact area where trouble has occurred, enabling action to be taken without delay.

This system can be used to guard against fire and/or damaging cold. One unit will protect 15 areas with as many as 300 "detectors" in each area.

• • •

When an aerial cable is bowed, as shown in the accompanying photograph, sheath fatigue and perhaps ring cuts will result if corrective measures are not taken. Bowing, in general, can be corrected most effectively and economically by slackening the suspension

strand until the bows disappear. In some few cases, especially with smaller cables, it may prove advantageous to cut slack out of the cable itself.

• • •

We are in receipt of a letter from Col. Louis B. Bender, who is retired and now is living in Manhattan, Kan. He informs us that he continues to read and enjoy TELEPHONY.

• • •

On modern intercommunication systems, the main, or master stations, can call all secondary stations, but in some systems the latter cannot call back. These often are referred to as "master" and "slave" stations.

• • •

Tests now are being conducted in three government agencies in Washington, D. C., to determine the effect of soft background music on workers. The objective is to coax more work and efficiency out of present personnel in a most pleasant and subtle way. It is hoped that music will make them forget about their domestic difficulties, office feuds and other worries. The music is tailored to fit the employe's

(Please turn to page 24)

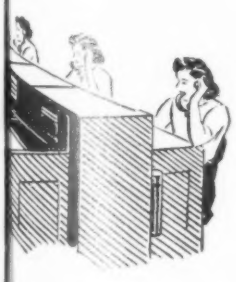
S... Strowger Automatic CAN DO MORE FOR YOU!

Start using Strowger Automatic, and you find more and more uses for this versatile equipment. No matter how much you use it, Strowger Automatic can always do *more* for you — in many different ways.

In the small community exchange it serves as the entire operating staff — automatically completing local calls, and directing toll calls to the operator at a distant attended exchange. In town or city it meets all operating requirements in exchanges of any size — including private branch exchanges. In toll switching, it speeds up service, improves toll-line efficiency, saves operating costs: it offers all facilities needed in the most comprehensive automatic toll networks — including the Strowger Director for register-sender-translator-operation.

Shown below are a few of the ways Strowger Automatic equipment might help you. Take a moment to read about them — and then ask the Automatic Electric representative (or write us) for complete information about any or all. You will be glad to know just exactly what Strowger Automatic can do for you.

YS:



AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus..Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions

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Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

subconscious mind—to keep his mind on his work and from wandering to worries. The music goes on automatically for about 30 minutes out of every hour and is designed to capture the employe's subconscious mind as it is about to wander.

Generally, it is observed, people doing manual work like background music, but some of the others who do creative and planning work, say the music distracts them.

• • •

If any of our readers have had experience with aerial cable suspended by the spinner method in extremely cold climates, will you please tell us about it?

PLANT MAN'S QUIZ

Q. Will screw eyes provide satisfactory support for a drop wire which is run on a wooden building?

A. Insulated screw eyes that carry a porcelain ring where the wire is supported in the center have proved entirely satisfactory. The split insulated screw eye, the ring of which has a nine-sixteenth-inch diagonal opening which permits the easy insertion of wires, usually is preferred by installers.

• • •

Q. What objection, if any, is there to the use of porcelain insulators instead of glass ones on toll and rural lines? Porcelain insulators were used rather extensively a few years ago, but we never see them any more. Will porcelain stand shooting better than glass?

A. The old porcelain insulator had numerous disadvantages. The threads never were accurate and did not fit the wooden pins snugly enough so floaters were frequent. The grooves were not shaped properly nor deep enough so that wires could be tied securely in them and this fault resulted not only in floaters, but burned line wire as well. A wire loose in an insulator groove soon will vibrate and hammer itself in two.

Modern methods permit moulding extra petticoats, which provide greater surface and better insulation than was possible in the old porcelain type. The porcelain insulator did not possess good insulating qualities and was far inferior in this respect to the modern glass variety for voice frequencies.

Another feature which may have had some effect on the change from porcelain was its inability to pass light. In some countries, ants and termites work only in the dark; therefore, they nested in the pins under porcelain insulators. Conversely, clear glass passes light freely and discourages this nesting of insects which always resulted in trouble.

Since modern glass is exceptionally strong and will withstand even greater shock than was possible with porcelain, we would say that glass will withstand shooting equally as well as porcelain; however, whenever a bullet hits any insulator squarely, it does not have much chance to survive.

• • •

Q. The conventional method of transposing for a phantom group on a two-arm lead is to group wires 1 to 4 and 7 to 10, 11 to 14 and 17 to 20; then, provide another vertical phantom group with pole pin wires 5 and 6, 15 and 16. Would it be satisfactory to transpose two crossarms of all vertical phantoms? This method would group wires 1-2 and 11-12, 3-4 and 13-14, etc. The advantage of this method would be in the elimination of all transposition. We would appreciate your opinion of this idea along with its possible disadvantages.

A. While this idea could be used and possibly has some merit, it is believed that numerous disadvantages would prohibit its general acceptance. First, many companies now are using carrier systems on their open wire leads, which require equal spacing of wires. The point type transposition bracket was designed for this purpose.

Other companies are using eight-pin crossarms only, which provides two phantom groups. This school of thought considers the pole pin circuits and vertical transpositions not worth the effort.

Another fact to be considered is that when the pole pins are phantomed, the location near the pole provides a strong bracing effect. The extra strain of a vertical phantom placed out on the end of a crossarm might pull the crossarms out of shape, which would necessitate extra bracing. This would offset the savings realized by the elimination of phantom brackets.

• • •

Q. Is it considered good practice to attach two guys to one anchor rod?

A. If the anchor has ample holding power, this practice is considered satisfactory. The twin eye rod will be found advantageous for this method of guying.

• • •

Q. We find that cable flattens dangerously when pulled in over various types of rollers. How can this be prevented?

A. In our opinion, your trouble probably is due to the use of rollers which are too small. Special sheaves and shackles can be procured from your telephone supply house which will prove satisfactory. One such device has a wheel 20 ins. in diameter and will accommodate cable up to 2⅝ ins. in diameter.

• • •

Q. We have a cross connected terminal installed in a long aerial cable to provide a test point. Is it considered necessary to connect the sheaths of both cables at this point?

A. The sheath of an aerial cable should be electrically continuous for its entire length. This is necessary in order to prevent large differences of potential which otherwise would occur at sheath ends during electrical storms.

• • •

Q. Please describe the operation of an eight-party rural line arranged for harmonic ringing.

A. With this system, four bells are connected from the tip side of the line and four bells from the ring side to ground. The bells are rung by four different frequencies of ringing generator. The switchboard cord circuits must be arranged to select either of four frequencies and connect it to either the tip or the ring side of the line.

• • •

Q. What is the answered call automatic peg count on a manual switchboard?

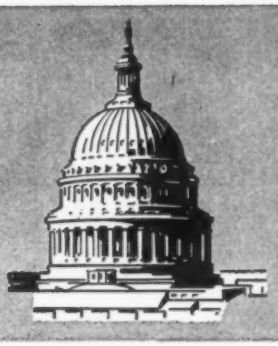
A. This feature automatically registers every call that the operator answers. This arrangement provides the chief operator with an accurate record of all traffic handled by hours, days or months.

• • •

Q. In planning our central office layout, will it be best to use main frame verticals which mount 100 or 200 pairs of protectors?

A. Either arrangement is considered satisfactory. The 100-pair strip requires more floor space. If you anticipate considerable growth and do not have ample floor space for future expansion, then perhaps the 200-pair strip will prove to be the better arrangement.

COURTS and COMMISSIONS



Chillicothe, Ohio, Rates Increased March 1

The Ohio Public Utilities Commission has granted the Chillicothe (Ohio) Telephone Co. authority to increase rates but pared the increase by nearly 1 per cent. (TELEPHONY, Jan. 25, p. 26.)

The rates authorized by the commission will return a flat 6 per cent on the commission's valuation of the company's property. The telephone company had asked for a return of 6.88 per cent.

V V

Reopen Northwestern Bell Rate Case in South Dakota

Scheduling a hearing on the matter for Apr. 8 in Pierre, South Dakota's Public Utilities Commission issued Feb. 26 an order reopening the rate case of the Northwestern Bell Telephone Co. which was handled by negotiations last December and which subsequently provoked newspaper charges of "secrecy." (TELEPHONY, Jan. 11, p. 20.)

In announcing the commission's action, Gov. George T. Mickelson said that the increased rates which went into effect at Bell exchanges after Jan. 27 will remain effective until after the commission conducts its hearings. He explained that possibly more than one hearing may be necessary, but that all persons desiring to be heard will be given an opportunity to express their objections or support of the rate increase.

W. R. Johnson, Omaha, Neb., vice president and general manager of the Northwestern Bell Telephone Co., commented: "Inasmuch as the commission has instituted an investigation of our recently established rates, the company welcomes the opportunity to present the facts. While it regrets the expense involved on both the part of the public and itself, it feels confident it can demonstrate that it is not only entitled to these rates but could justify even higher rates."

Fred C. Christopherson, editor of the Sioux Falls (S.D.) *Argus-Leader*, who led an attack against the commission for allegedly suppressing news of the rate negotiations and whose charges ultimately resulted in a study of the matter by a state legislative investigating committee said:

"It never has been my contention that the telephone rate increases . . . were either too high or too low. My complaint was that, because no publicity was given, the people had no opportunity to be heard or voice their objections. The current order reopens the case and provides that opportunity. It is satisfactory. Governor Mickelson is to be commended for his leadership in bringing about this development, and the public utilities commissioners also, for their willingness to take steps to rectify a situation that had created much criticism."

V V

Rate Increase Denial Threatens Improvement Program

A construction and installation program under way to improve services of the Illinois Commercial Telephone Co., Springfield, Ill., on its network of 181 exchanges throughout Illinois not only may be curtailed, but final completion may be postponed indefinitely as a result of the Illinois Commerce Commission's adverse decision on the company's application for a rate increase, Walter Dakin, Illinois Commercial president, said Feb. 24.

A petition for rehearing of the application will be filed at the earliest possible moment, he said.

The commerce commission rejected the original application on Feb. 24 with the opinion that inadequate evidence had been presented to prove need for the increase.

"The action of the commission does not pass on the merits of the company's application," Mr. Dakin said. "On the contrary, the decision points out the necessity for further evidence in the light of the importance of the case and its far reaching effect on the maintenance of an adequate telephone system.

"In view of the decision, the Illinois Commercial Telephone Co. is immediately faced with the possible necessity of curtailing its substantial construction program and it is fearful that suppliers may release to others the critical materials now on order and thus postpone for an indefinite period the completion of the program now under way," he continued.

"It is impossible to forecast the results of labor negotiations should the company be unable to finance on an adequate basis its operations in 181 Illinois communities," Mr. Dakin pointed out. "Only by an early settlement of the issues involved in this case can it be hoped to avoid work stoppages, service interruptions and labor difficulties of a critical character.

"The company will continue to serve the public as best it can consistent with its financial ability in view of the decision," he concluded.

V V

Increased Rates Approved For Washington, Me.

The Maine Public Utility Commission recently granted the application of the Washington (Me.) Telephone Co. for authority to increase its rates. The former and new monthly rates follow:

	Former Rates	*New Rates*
Business one-party....	$2.50	$3.00
Business two-party....	2.25	2.50
Business four-party...	2.00	2.25
Business rural, eight-party max.....	2.00	2.25
Business rural, over eight-party	2.00	2.00
Residence one-party...	2.00	2.25
Residence two-party...	1.75	2.00
Residence four-party..	1.50	1.75
Residence rural eight-party max.....	1.50	1.75
Residence rural, over eight-party....	1.25	1.50

Hand sets .25 extra

V V

Michigan Bell to Revise Mobile Radio-Telephone Rate

Authority to revise its mobile telephone service tariff approved Sept. 12, 1946, so as to designate the Michigan portion of the Toledo, Ohio, mobile service area was granted Michigan Bell Telephone Co. in the Michigan Public Service Commission's order of Feb. 24.

In a petition filed Feb. 10, Michigan Bell cited the application of the Ohio

Bell Telephone Co. for a license to operate a newly-constructed urban mobile radio-telephone station at Toledo, which would serve an area including all exchanges with a 20-cent station-to-station day message toll rate to that city.

Such an area would include the Michigan company's Monroe exchange and 11 exchanges of petitioner's connecting companies. When the Toledo radio-telephone station becomes operative, mobile service between a fixed wire telephone located anywhere and a mobile unit in the Toledo area, or two mobile units in the Toledo area, will be possible via that station.

V V

Oklahoma Company Gets Higher Rate O.K.

The Oklahoma Corporation Commission has issued an order granting the application of the Home Telephone Co. for increases in rates at Achille and Calera, Okla. (TELEPHONY, Feb. 8, p. 24.) Rate changes are:

	Old Rates	*New Rates*
At Achille:		
Business, one-party	$2.50	$3.00
Residence, one-party	1.50	1.75
Rural, business, one-party.	1.50	1.75
At Calera:		
Business, one-party	2.50	3.00
Residence, one-party	1.50	1.75

A desk set differential of 25 cents per month and a handset differential of 35 cents per month, is allowed the company.

V V

Hearing Dates Set For Pacific T&T

Hearing on the Pacific Telephone & Telegraph Co.'s proposed 10 per cent rate increase in its California exchanges have been scheduled for Mar. 24 in Los Angeles by the California Public Utilities Commission.

The proposed statewide general increase also will be reviewed by the commission in San Francisco on Mar. 10.

V V

ICC Takes Bell Rate Plea Under Advisement

The Illinois Commerce Commission on Feb. 26 took under advisement a petition of the Illinois Bell Telephone Co. for a temporary increase of about 16 per cent in rates after hearing oral arguments. Hearings will continue on the company's request for a permanent hike in telephone rates. (TELEPHONY, Feb. 15, p. 31.)

Attorney Leslie N. Jones, representing the company, told the commissioners that revenues increased 59 million dollars yearly from 1940 to 1945 whereas expenses increased 68 million dollars a year in the same period. Attorney James J. Danaher, representing the city of Chicago, and Attorney Hugh Dobbs of Springfield, for other Illinois municipalities served by the company, opposed the proposed rate hikes.

V V

Northern Telephone Co., Blair, Neb., Increases Rates

Nebraska State Railway Commission Feb. 24 approved application of the Northern Telephone Co., Blair, to increase its telephone service rates on a three-step basis.

Business and private residence rates increased about 30 per cent, party lines increased about 20 per cent, and farm rates did not increase under the changes which went into effect March 1.

V V

Continue New England Rate Case Pending Further Information

A revised set of figures to show comparisons of expenses and revenues of the New England Telephone & Telegraph Co. in its New Hampshire operations between 1926 and 1946 is awaited by the New Hampshire Public Service Commission. (TELEPHONY, Dec. 14, p. 36.)

Erskine N. White, vice president and general manager, admitted to the com-

Answers to Traffic Questions on Page 19

(1) Say, "What is the number, please?" or "Do you know the number?"

(2) Use one of the following phrases which best suits the condition and frame of mind of the customer:

"Shall I give you Information?"

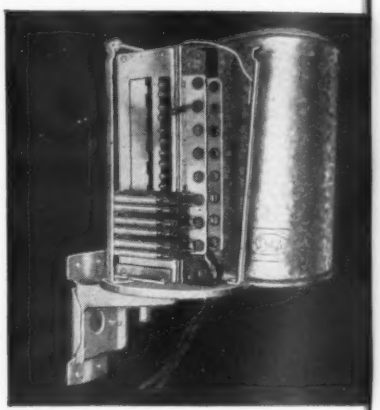
"Will you look in your directory for the number, please?"

"I will look for the number; one moment, please?"

(3) If some of the lines of the group are out of order and the remaining line or lines are busy, pass a busy report in the regular way.

(4) Repeat the called number, saying, for example, "132 has been temporarily disconnected."

(5) The two cords are clipped together.

STROMBERG
cook type S-20
pole cable terminal

Can be used as a protected or unprotected terminal. Made in 6, 11, 16, or 26 pair capacity.
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offer the user:
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fuses and primary and secondary li
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nections are at front. Drops are
through individual insulating kn
out holes. Self-soldering nozzle
close to pole. Hood locks in raised
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bracket eliminates gaining of pole
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NO. 17 BRONZE TWISTED PAIR NEOPRENE SHEATHED DROP WIRE

Stromberg-Carlson offers these two new Drop Wires with five important features:

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4. Mechanically Strong.
5. Time-Tested.

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Neither rain nor snow, sleet nor hail keep them from giving dependable service. Favorably known since 1870, these insulators are products of Hemingray Division of Owens-Illinois and are manufactured under their rigid laboratory inspection.

Many of these insulators are in service today after 20, 30—and even 50 years. The installation cost is low—but with Hemingrays the cost in service life is even lower.

Hemingray No. 10: The exchange line pony with double groove. Standard on many tele phone lines the world over.

build for permanence and economy *with poles bearing this trade-mark*

The T. J. Moss Tie Company's creosoted southern yellow pine poles are time-proven.

Every pole is full-length pressure-treated in accordance with American Wood Preservers' Association specifications.

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STROMBERG Telephone CARLSON

mission Feb. 20 that the company's analysis of its operations included both the addition of new companies and dial system installation company-wise, which should not be considered in a New Hampshire rate case.

After seven days of testimony and cross-examination on the company's request for a $940,000 boost in its rates, the hearing was continued indefinitely to allow the company to comply with the commission's request for further information.

Indications were that before a decision was reached the commission would take several weeks to deliberate after all the testimony and summations were presented.

V V

Southern Bell Asks Higher Rates in Georgia

The Southern Bell Telephone & Telegraph Co. argued before the Georgia Public Service Commission Feb. 24 that a rate increase is mandatory if it is to continue to expand and improve service.

The argument was made by John T. Goree, attorney, in summing up evidence on the company's application for a raise in local exchange and intrastate toll rates.

Mr. Goree told the commission that Southern Bell earnings in Georgia for the last half of 1946 dropped 50 per cent below interest requirements. He said earnings for the full year were only 1.53 per cent on capital.

Increases in the costs of furnishing service, higher wage rates, increased costs of materials and the financial outlay for expanded service account for the low earnings, Mr. Goree said. He added that the company increased its investment in the state by $250,000,000 between 1940 and 1946 but that its annual earning power declined $1,367,000. Revenues rose 114 per cent while expenses increased 152 per cent during the six-year period, he said.

R. D. Alford, service engineer for the commission, testified earlier that complaints over service and inability to obtain telephones were rare prior to 1946. Mr. Alford said such complaints increased last year and he anticipated a still greater volume.

V V

Trout Run, Pa., Company Takes Over New System

Negotiations now are underway for the Lycoming Telephone Co., Trout Run, Pa., to take over the Brookside-White Pine Co., it was announced Feb. 22.

The Lycoming company has prepared an application to the governor to amend its corporation charter and at the same time is applying to the Pennsylvania Public Utility Commission for approval of the plan.

The present Brookside-White Pine Telephone Co. operates in Pine, McHenry, Cummings and Cogan House townships.

It is understood that subscribers on the Brookside-White Pine lines have requested that the Lycoming company take over and improve the system.

V V

Decatur, Ind., Company Petitions for Improvements

The Citizens Telephone Co. of Decatur, Ind., serving exchanges in Decatur, Monroe, Berne and Bryant, will petition the Indiana Public Service Commission to convert from the present manual system to a full automatic dial system.

The proposed improvements also would provide for enlarging the system from the present four to six exchanges. The two new exchanges would be built at Linn Grove and Pleasant Mills.

The company also plans further improvements by rebuilding all the rural lines. The improvements, if made, would entail expenditures of $534,225, based on recent estimates.

V V

Southern Bell Asks Hike In Florida Rates

An application for increased rates was filed Feb. 24 with the Florida Railroad Commission by the Southern Bell Telephone Co.

Permission was asked to boost charges for business telephones from $1.50 to $2.00 a month. The requested increase for residential rates would amount, in most cases, to about 50 cents a month. Comparably smaller long distance increases were requested, because present schedules are only two years old.

Citing increased operating costs and shrinking financial returns, the company's petition said continuation of its "present grossly inadequate schedule of rates and charges would not permit it to maintain and expand an adequate telephone service for the people in this state."

In announcing that the commission will hold a public hearing on the application, probably on Mar. 25, Commission Secretary Floyd H. Bradley said: "The commission will take the request under consideration and develop the facts thoroughly, making its decision in the best interests of good telephone service."

A. B. Dooley, Florida manager of the company, said in his petition that the company has found it necessary to pay higher wages and higher costs for supplies since the present rates were established. There have been no substantial changes in the exchange rates in Florida since 1935, and the present long distance toll rates were established on Jan. 1, 1944.

The company said its gross payroll operations had increased 243 per cent since 1940, and that earnings on its investment during 1946 were at the annual rate of 2.66 per cent—the lowest "at any time during the last quarter century, except for the hurricane year of 1926."

It was noted that on Jan. 1, 1946, the company had 36,656 applications for service in Florida that it had not been able to fill. During the year, it installed 84,598 new telephones and the number of unfilled applications had grown to 52,066.

The petition said the company's "ability to meet its reasonable operating expenses and to realize reasonable earnings on its property used in rendering telephone service in this state is limited by the rates and charges which it is permitted to make" for services.

V V

Elmore City, Okla., Company Sold

B. Richardson, telephone engineer of the Oklahoma Corporation Commission, has been notified that Oliver Odell has sold the Elmore City (Okla.) Telephone Exchange to John Crowder, who is operating the Fittstown, Okla., exchange of the National Telephone Co.

Recent discovery of a new oil field near Elmore City has improved business prospects of that exchange, which is listed as having about 200 telephones.

V V

Rural Rates Raised In Hammon, Okla.

The Hammon (Okla.) Telephone Co., J. W. Ratts, Manager, has been granted increases on its rural rates effective immediately.

Since the company was granted an increase in business and residential rates in the town of Hammon in 1945, it has purchased a new switchboard and spent a considerable amount of money improving its outside plant, particularly its rural lines.

In view of these improvements, the Oklahoma Corporation Commission granted the following rate increases on rural lines:

Subscriber-owned telephones, rural multi-party service, increased from 75 cents per month to $1.25 per month; company-owned telephones, rural multi-

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party service, increased from $1.25 per month to $1.50 per month.

The applications were presented to the commission through the Oklahoma Telephone Association, H. W. Hubenthal, secretary and Leslie L. Conner, association attorney.

V V

Routine Maintenance Ordered at Stroud, Okla.

Following a hearing on Jan. 29 on a complaint of citizens of Stroud, Okla., alleging unsatisfactory telephone service by the Oklahoma Telephone Co. there, the Oklahoma Corporation Commission has ordered the company to give routine maintenance to the central office, the outside plant and subscriber station equipment. (TELEPHONY, Feb. 8, p. 22.)

If the commission telephone engineer, B. Richardson, should find the plant in unsatisfactory condition 30 days after the date of the order, Feb. 19, 1947, and should find upon another inspection that telephone service still is unsatisfactory at Stroud, then the company would be cited to appear before the commission and show cause why service should not be improved.

Company officials testified, at the recent hearing, that they have been trying since 1945 to purchase a new switchboard for Stroud and are now promised the new board by August or September of this year. Meantime, they have promised to do everything possible to keep the present 23-year-old magneto switchboard in as good condition as possible, also to make improvements to the outside plant.

V V

Hear Mississippi Rate Hike Plea by Southern Bell

A special hearing on a rate increase petition by the Southern Bell Telephone & Telegraph Co. was set by the Mississippi Public Service Commission for Mar. 5. (TELEPHONY, Feb. 15, p. 32.)

Previously the hearing had been set for the Feb. 4 meeting of the commission.

V V

Name New Mexico Commissioner

Appointment of L. R. Conarty of Carlsbad to serve on the New Mexico State Public Service Commission, effective Mar. 1, was announced by Governor Mabry. Mr. Conarty, whom the governor said planned to retire as Santa Fe railroad agent at Carlsbad, succeeds Tom Truder of Las Vegas, who resigned because of poor health.

Gail S. Carter earlier had been named to the commission post, but Governor Mabry withdrew that appointment when Mr. Carter declined to serve because of "a highly attractive offer" for his services elsewhere. Mr. Carter was chairman of the state's first public service commission in 1941.

V V

File $10,500 Suit Against Southwestern Bell

The Southwestern Bell Telephone Co. and A. B. Porter, lineman of Morrilton, Ark., are named defendants in a suit for damages for a total of $10,500 filed in Conway County Circuit Court by Robert Young of Morrilton as father and next friend to Charles Robert Young, age seven, who was knocked down and injured by a company truck driven by Mr. Porter Jan. 29.

The complaint states that the child was endeavoring to reach a school bus and was hit by Mr. Porter, who is alleged to have been driving at "a high and dangerous rate of speed, failing to keep the proper lookout or to stop."

V V

Lincoln T&T Asks Tariff Schedule for Mobile Service

The Lincoln (Neb.) Telephone & Telegraph Co. has asked approval of the Nebraska State Railway Commission of a schedule of tariffs for mobile radio-telephone operations. These approximate $20 a month, and customers may choose between three types of service—general service between any telephone and a mobile unit or between two units, dispatching service between a designated office of a subscriber and a designated mobile unit and a one-way service from a designated telephone to a mobile unit.

The company was the first Independent corporation to receive an experimental license and the first to be given authority to operate on a commercial basis, it was reported.

V V

Uphold Court's Jurisdiction In Hotel Surcharge Case

The court alone may entertain proceedings by a utility to recover its charges according to a ruling of the Pennsylvania Supreme Court which Jan. 28, in the case of the Bell Telephone Co. of Pennsylvania vs. Philadelphia Warwick Co., denied such power to the public utility commission. (TELEPHONY, Aug. 17, p. 36.)

Action was brought by the Bell company to recover $5,670.28 withheld as commissions by the Philadelphia Warwick Co., operating the Warwick Hotel in Philadelphia, after the telephone company had terminated an agency contract because of imposition of surcharges by the hotel.

The hotel stated that such jurisdiction should fall within the province of the utility commission, which neither had approved the original contract, question of rates nor cancellation of contract. The court declared that the commission, whatever its function may be in determining reasonable and just amount of hotel's commissions, has no jurisdiction to entertain such proceedings.

V V

Names Accounting Head

KEITH W. VOGT of Lincoln has been named by the Nebraska State Railway Commission as head of its accounting department to succeed JOHN H. SCHNELL, who resigned after 21 years to enter private employment.

V V

Geneseo, Ill., Rates Go Up

The Illinois Commerce Commission Feb. 25 authorized the Geneseo (Ill.) Cooperative Telephone Co. to place a new rate schedule, effective Mar. 1.

V V

Summary of Commission Rulings & Hearings

Federal Communications Commission

Mar. 25: Hearing on request of Chesapeake & Potomac Telephone Co. of Virginia and Chesapeake & Potomac Telephone Co. of Baltimore, Md., for authority to increase interstate rates.

California Public Utilities Commission

Feb. 7: Hearing on request of Pacific Telephone & Telegraph Co. for authority to discontinue operations at Spring Garden, Plumas County.

Feb. 7: Hearing on request of Kern (Calif.) Mutual Telephone Co. for authority to change directory advertising rates at Kern, Santa Barbara County.

Feb. 7: Dismissed case of California Farm Bureau vs. A. A. Harrington (Livingston (Calif.) Telephone Co.) and Pacific Telephone & Telegraph Co. on request of complainant.

Illinois Commerce Commission

Mar. 4: Hearing on complaint of Lloyd Bond, Paul Sanders, Earl Flowers and Howard Bates concerning service of Rixmann Telephone Co., Walnut Hill. Ask that Illinois Bell Telephone Co. be required to extend lines there and Rixmann company remove equipment.

Mar. 4: Hearing concerning proposed increased rates of Okaw Commercial Telephone Co., Okawville.

Mar. 4: Hearing concerning proposed sale by Illinois Bell Telephone Co. to Illinois Consolidated Telephone Co. of property in Montgomery County.

Mar. 5: Hearing on request of Hoopeston (Ill.) Telephone Co. for authority to increase rates.

Mar. 5: Hearing on proposed rate

(Please turn to page 33)

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SEVEN books by Harry Walker, B.S., C.E., Ph.D., whose 25 years of experience as an engineer, vocational foreman, supervisor, educator, and author fits him to write for keymen in industry about their duties and responsibilities, their problems, and their jobs in a postwar world.

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From Manual to Dial

(Concluded from page 16)

Fig. 12 shows a 25 kw. gasoline driven emergency unit which also may be started automatically during a power failure. This unit has a governor to control the speed and a device to stop the motor in case its temperature should rise above a certain degree or because of a failure in the lubricating system.

Testing equipment for use in dial exchanges is extremely important. It should be as simple as possible and designed to fit the needs of the individual exchange where it is to be used. Much valuable time can be saved in analyzing and clearing trouble by the intelligent use of the proper testing equipment.

A device that automatically will make routine tests on lines for opens, shorts and grounds is available. It may be adjusted to operate at any desired resistance limit for shorts or grounds. When this routine testing set is started on any line it will switch automatically to the succeeding line and continue until a line that shows a fault is found. The device then stops until an attendant checks the line in question to determine the nature of the trouble. Then a key is operated that again starts the testing operation. Similar equipment also may be used for central office routine testing of equipment. Both of these devices are speedy and a worthwhile addition to any large or small central office.

A training program designed to teach the plant personnel how to maintain properly and efficiently the new dial equipment should be conducted prior to the cut-over.

Contrary to the opinion of some, there are no mysteries about dial operation that cannot be learned easily. Anyone with manual experience and the average amount of intelligence readily can adapt himself to dial maintenance work. In fact, it is a distinct advantage to have had a thorough knowledge of manual systems before taking up work on dial equipment.

As a step in the right direction, a schedule should be prepared covering every phase of the conversion and copies supplied to each person in charge of the different operations so that nothing will be overlooked. To neglect or overlook anything may result in failure of the equipment after the cut-over and no matter how quickly some of these faults are corrected, they may have left a bad impression of dial service with the subscriber.

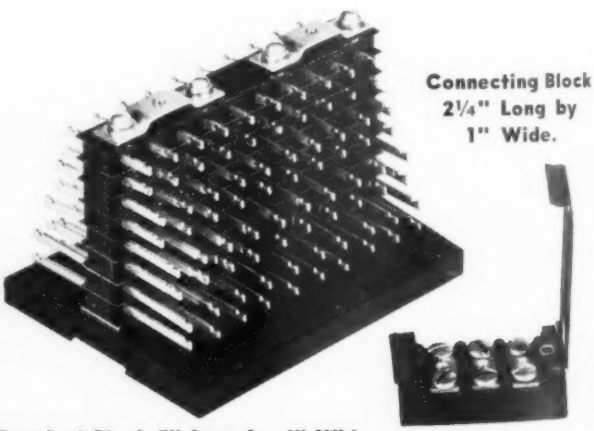
Since many changes will be required in the plant records, consideration should be given to the adoption of an up-to-date modern system. This does not mean that such a system must be elaborate or complicated, but it should impart quickly all the information needed and include data that will serve as a guide in determining when and where preventive maintenance work should be performed.

In conclusion, it is urged that consideration be given to the following suggestions before proceeding with the actual dial installation:

(1) Select carefully the proper equipment for the project.
(2) Provide a fireproof building of sufficient size and design to care for future growth.
(3) Make all necessary tests and correct all faults found prior to the cut-over.
(4) Install adequate testing equipment.
(5) Train maintenance personnel.
(6) Establish complete plant records.
(7) Maintain the system in the best possible state of repair. This will pay dividends in money, good will and self-satisfaction.

FAHNESTOCK

Terminal and Connecting Blocks



Connecting Block 2¼" Long by 1" Wide.

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Fahnestock terminal and connecting blocks have been standard equipment on all telephone and telegraph lines of the railroads and telegraph companies in the United States and Canada for the past 20 years and meets all A.A.R. Communications Section requirements. The terminal block's base and fanning strips are made of molded bakelite, and this, together with its phenolic insulation strips, makes it far superior to the rubber or wooden types and can be had from 10 to 80 wire capacity.

The smaller 7-B connecting block hardly needs description, except that its cover is non-removable and the screws are peaned over to prevent them from dropping out.

Write for information today.

increase for Rossville (Ill.) Telephone Co.

Mar. 5: Hearing on request of Farina (Ill.) Mutual Telephone Co. for authority to increase rates.

Mar. 6: Hearing on proposal of Port Byron (Ill.) Telephone Co. for rate increase.

Kansas Corporation Commission

Mar. 17: Hearing on application of Mullinville (Kan.) Telephone Co. for authority to make certain changes in rates.

Mar. 17: Hearing on request of Western Light & Telephone Co., Inc., for authority to rebuild telephone system in Garden Plain, Kan., to convert same for use of dial equipment and make certain changes in rates.

Mar. 17: Hearing on complaint of A&P Cooperative Telephone Co., Abbyville, by Henry H. Dunn, attorney, concerning inadequate service.

Mar. 24: Hearing on application of Farmers Mutual Telephone Co. for authority to make rate changes at Wakefield.

Mar. 24: Hearing on application of Albion Telephone Co. for authority to make rate changes at Narka, Republic County.

New York Department of Public Service

Mar. 6: Hearing on application of Orange County Telephone Co., Middletown, for authority to issue $500,000 face amount mortgage bonds.

Oklahoma Corporation Commission

Mar. 12: Hearing on application of Indiahoma (Okla.) Telephone Exchange for an increase in rates for rural telephone service, as follows: On rural residence, multi-party service, increase is requested from 91-2/3 cents to $1.25 per month; on rural residence, multi-party service (subscriber-owned telephones), from 66-2/3 cents to $1.00 per month; on rural residence switched service from 42 cents to 50 cents per month.

Apr. 16: Hearing on application of McCloud (Okla.) Telephone Co. for increased rates.

Pennsylvania Public Utility Commission

Feb. 17: Denied respondent's motion to dismiss case of Pennsylvania Hotel Association and Penn-Harris Hotel Co. vs. Bell Telephone Co. of Pennsylvania. Merits to be filed within 15 days of order.

Wisconsin Public Service Commission

Mar. 10: Hearing on application of Wisconsin Telephone Co., Milwaukee, for authority to increase rates.

V V

Plans New Systems

Olin Walker, manager of the Hill City, Kan., exchange of the American Telephone Co., announced recently that all material for a new telephone building and equipment for the new common battery telephone system has been ordered for some time. He said that the new system will be in use within the year if these materials can be obtained.

FOR YOUR CONSIDERATION

PINS FOR TELEPHONE CONSTRUCTION

The ever popular Hubbard Telephone Pins are styled to fit every telephone construction need. The drop forged pin bodies have clean, rolled threads and are heavily galvanized for protection against corrosion. Great care is taken in preparing the wood cobs which are properly seasoned, air dried and thoroughly impregnated with paraffin.

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HUBBARD AND COMPANY

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PITTSBURGH . . . CHICAGO . . . OAKLAND, CALIFORNIA

Bell Gain Tops 3 Million

(Continued from page 18)

40-year 2⅝ per cent debentures and the Pacific Telephone & Telegraph Co. in October sold $75,000,000 40-year 2⅞ per cent debentures, both through competitive bidding. Stockholders of AT&T, at a special meeting held on October 16, 1946, voted to authorize an issue of convertible debentures to be offered to shareholders in proportion to their holdings of stock of record as of Nov. 8, 1946, each shareholder being entitled to subscribe for $100 principal amount of these convertible debentures for each six shares of stock held. Subscriptions were received for $330,208,800 or 96 per cent of the debentures offered and the unsubscribed balance of $12,878,900 was sold later in the market at an average price of $117.65 per $100 of debentures. These debentures are convertible into stock on and after Apr. 15, 1947, at a conversion price of $150 per share, payable by surrender of $100 principal amount of debentures and payment of $50 in cash for each share.

The stockholders also voted at the special meeting to increase the authorized capital stock of the company from 25,000,000 to 35,000,000 shares and to authorize an employes' stock purchase plan.

"Telephone companies are not free to choose when or to whom they will render service. They must, so far as is within their power, provide facilities to furnish service to all who want it, when they want it. During the war, shortages of labor and material made it impossible to provide the additional plant needed to keep pace with demands for service not directly associated with the war effort, and there are now heavy backed-up demands to be met, plant margins to be restored, and deferred betterments which must be resumed, in addition to meeting the continuing new demand for service. Furthermore, the cost of building new plant to take the place of that retired from service has increased substantially. While Bell System companies follow a long established policy of providing through depreciation expense for the cost of property which is being used up in service, they cannot so provide for increases in construction costs.

"All this necessitates obtaining large amounts of new capital to finance the great construction program already under way," Mr. Gifford said.

Total cost of the Bell System plant today amounts to about $245 per telephone of which only $16 or 6.5 per cent is for the telephone itself. On Dec. 31, 1946, plant cost per telephone was distributed between the various classes of plant as follows:

Items of Plant	*Amount*	*Per Cent of Total*
Telephone instruments	$ 16	6.5
Lines and equipment between telephones and central offices..	90	36.7
Switchboards and equipment in central offices	71	29.0
Toll and long distance lines	37	15.1
Land, buildings and other plant	31	12.7
Total.....	$245	100.0

More Stockholders

AT&T continues to be more widely owned than any other corporation, with 695,660 stockholders of record at the end of 1946. This is 11,763 more than a year ago. More than one-half of the stockholders are women. The average number of shares held was 29.6 and no stockholder held as much as one-half of 1 per cent of the total stock outstanding. Holders of one to five shares numbered 207,400 while 655,900 stockholders, or 94 per cent of the total, held less than 100 shares each. Holders of

It's an important question . . . and the final answer will depend, to a large degree, on the over-all efficiency of the organization that handles your directory advertising sales. The Loomis staff is scientifically trained to obtain increased revenue for you . . . through an ethical, carefully guided program that creates a friendly, favorable attitude toward your company.

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Omaha Nat'l Bank Bldg., Omaha 2, Nebr.

100 shares or more, including insurance companies and other institutions representing additional thousands of investors, totaled 39,800 and held 47 per cent of the stock. Approximately 50,000 Bell System employes own stock in the company.

Employes Increase

During the year, employes in the Bell System, including the Western Electric Co. and the Bell Telephone Laboratories, increased 142,627. At the end of the year, they numbered 617,154. This is the largest number of employes and the greatest increase in employment in the history of the business. Women now comprise 62 per cent of the total.

The total payroll of the Bell System for 1946, including the Western Electric Co. and the Bell Telephone Laboratories, was $1,602,700,000, an increase of $412,146,000 over 1945. For the fourth successive year, the schedules of pay for Bell System employes have increased above those for all preceding years.

Western Electric Co.

By the end of the year, the sales of Western Electric Co. to the Bell companies were at a rate more than 2½ times the volume in 1941.

Owing to large scale cancellation of war contracts following VJ-day, total sales decreased in 1946 to $610,356,000, compared with $860,713,000 in 1945. However, sales to Bell companies in 1946 amounted to $518,971,000, or 85 per cent of total sales, compared with $188,916,000, or 22 per cent in 1945.

Earnings of Western Electric Co., including subsidiaries, amounted to $12,336,000 in 1946, or approximately 2 per cent of total sales, compared with $15,126,000 for the preceding year. Renegotiation of 1945 earnings on government business has not been completed. However, the company believes that adequate provision for any adjustment which may arise therefrom was made in the accounts prior to 1946. Practically all of Western Electric's claims on war contracts canceled in 1945 and earlier have been settled.

Benefit and Pension Plan

The pension trust funds of the Bell System companies, including the Western Electric Co. and the Bell Telephone Laboratories, amounted to $704,424,000 at the end of 1946. Pension accruals added to the trust funds during the year amounted to $97,472,000, or 6.1 per cent of the payroll. At the end of the year, there were 10,769 men and 6,198 women, or a total of 16,967, on the service pension rolls and some 11,000 more had completed the length of service and attained the age which entitled them to retire at their own request at the pension provided for in the plan. The amount needed to pay these pensions has already been provided in the pension trust funds.

Other payments made under the plan to about 110,000 employes and dependents of employes in 1946 were: Sickness disability benefits, $21,239,000; accident disability benefits, $1,145,000; death benefits, $3,365,000, and disability pensions, $994,000.

V V

Installs Three-Way Radio

The Madison (Wis.) Fire Department is installing its own three-way F.M. radio system on a waveband separate from police, it was reported recently. The system, one of the first in which firemen operate three-way radio independent of the local police wave length, permits communication among headquarters, the chief's car and other mobile fire-fighting equipment.

V V

Service to Rumania Opens

The American Telephone & Telegraph Co. has announced that telephone service between the United States and Rumania, interrupted by the war, was resumed Feb. 25.

DRIERITE DESICCANT
for drying cable splices

Drierite desiccant eliminates boiling out splices with hot paraffin. Shaking a small amount of Drierite on the completed splice is all that's necessary. The desiccant absorbs the moisture and holds it. It cannot injure the sheath, conductors, or insulation. Drierite desiccant is available from Leich in ⅛ pint and ½ pint cans. One-half the contents of the ⅛ pint can will dry out a splice in 80 to 130 pair paper insulated cable.

Order your cable supplies from Leich

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EVERYTHING FOR THE TELEPHONE INDUSTRY

Lipstick-Size Radio Makes First Broadcast

The world's smallest radio station, complete with a tube and circuit which will fit an empty lipstick container, broadcasted for the first time in Columbus, Ohio, Feb. 14.

A complete radio on a plastic card the size of a calling card will make its debut in New York this month to complete the vestpocket radio transmitting and receiving unit.

Dr. Cledo Brunetti, an electrical engineer at the National Bureau of Standards in Washington, demonstrated his tiny broadcasting station to the Columbus section of the Institute of Radio Engineers on Feb. 14.

He predicts that the printed wire process which makes his midget radios possible can reduce the cost of wiring radios, a big item in their price, by 30 to 60 per cent.

Vestpocket radios may even come with the vest of the future. Dr. Brunetti said that complete radio circuits can be printed on cloth.

The inch-long broadcasting transmitter and the calling card radio have been developed from the wartime proximity fuze which guided shells to enemy planes. Instead of complicated copper wiring, the proximity fuze and Dr. Brunetti's radios use lines of silver ink, a solution of fine silver or silver oxide, painted over a stencil to form a two-dimensional circuit. The carbon resistors are painted in over another stencil with a carbon solution to complete the circuit.

To complete a radio set, tiny tubes are soldered to the printed circuits. Tiny batteries from a hearing aid and a small microphone round out the equipment.

In addition to the inch-long broadcasting unit, Dr. Brunetti demonstrated two other transmitters with midget tubes mounted on small plates. One of the plates is about the size of a half dollar.

Dr. Brunetti was a pioneer in the work on printed wire. The process is now produced commercially by the Centralab division of Globe-Union, Inc., Milwaukee, Wis.

First large-scale peacetime use of printed wire may come for hearing aids. Dr. Brunetti expects some units to be on the market in a few months.

V V

Person-to-Person

Expert Advises "Collect" Calls

EMILY POST, famed social arbitrator, recently was called upon to help a perplexed guest solve the problem of getting the charges and paying for long distance calls without embarrassing or confusing her hostess.

Although it would seem the problem just as often is one that has challenged the tact of many a hostess (we recall the play, *The Man Who Came to Dinner*, where the unwelcome guest's dinner lasted some six months and included long distance calls to such notables as Mahatma Ghandi, Mrs. Roosevelt, then somewhere in Europe, *et al)* Mrs. Post came through with her usual omniscience.

Said the good manners' expert:

"Nothing could be simpler than the 'collect' telephone call as a means of avoiding the confusion and nuisance you speak of. All you have to do is tell central to put in a call 'collect.'

"Central then asks the person you are calling if he will accept the charge. You then are put through and the house from which you are calling is not even given a record of the call since it is charged to the person who accepted it.

"However, since 'collect' means that the person at the other end must pay for the call, such calls should not be made except to a member of one's family or to one's business."

England's Power Shortage Curtails Communications

Interesting figures issued by the British Post Office in London indicate that telephone calls made during 1945-1946 approximately double figures for the last comparable period 1938-1939. During the financial year ended Mar. 31, 1946, 2,368,000,000 telephone calls were handled by the post office.

Inland trunk calls numbered 192,-716,000; local calls, 2,175,000,000, and there were more than 383,000 international conversations during the year. Comparison with previous figures shows how the telephone habit is growing as 132 million fewer calls were handled during 1938-1939.

The very drastic cut in industry which took effect in Britain as from February 10, did not include the telephony transmitting industry although the telephonic manufacturing industry very definitely was affected. Telephonic communications were listed as an essential industry and consequently were ensured a continuing supply of electrical power at a time when all manufacturing industry had ceased.

The damage done on the other hand to the equipment manufacturing firms in the industry was considerable and undoubtedly will mean a considerable increase in delivery periods for all types of telephonic equipment for both the home and export trade. The complete blackout covered almost half of England and involved many of the most important firms in the industry.

Even when the present crisis has passed there is no guarantee that electrical power will be adequate; the prospect being rather that a continuing cut in power supplies will be effective for some 12 months to come.

V V

Telephones for Aid

Police Officers Joseph Burkhart and William Marvin of Ft. Wayne, Ind., made speed in answering a jittery youngster's telephone call for aid recently. They arrived just in time to officiate at the birth of a litter of kittens.

SUB-CYCLE

EFFICIENT UNDER THE SEVEREST OPERATING CONDITIONS

SUB-CYCLE is designed in accordance with sound engineering principles, meeting every requirement. It operates on A.C. current, has no moving parts. There's nothing to adjust or wear out. Can not interfere with radio reception. Provides ample power. Is quiet and economical, and will deliver years of efficient, low cost service.

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MADE IN SEVERAL MODELS FOR LOADS FROM SMALL PBX TO LARGE CENTRAL OFFICE

Sold by Leading Distributors

Also PULSATORS

Use FLOTROL—The Ideal Automatic Constant Voltage Battery Charger With No Moving Parts

LORAIN PRODUCTS CORPORATION
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Canadian Bell Demonstrates Mobile Radio-Telephone Service

From automobile to a luncheon gathering at the Royal York Hotel, Toronto, Ontario, recently two-way radio-telephone conversations were effected successfully in the first Canadian demonstration of mobile telephone service to be undertaken by the Bell Telephone Co. of Canada.

As special guests of the Electric Club of Toronto, the telephone company officials demonstrated the advantages to various businesses, and particularly newspaper publishers.

Representatives of the three daily Toronto newspapers were reached by reporters in mobile telephone cars stationed at various points in the city.

Conversations ranged from the assistant managing editor of one newspaper obtaining the latest information on activities in the House of Commons at Ottawa, to other newsmen at the head table accepting calls from reporters on the scene of imaginary bank holdups or cruising around the streets, and giving last minute instructions for coverage.

John M. May, assistant vice president of the Bell Telephone Co. of Canada, sketched the background of the development of the mobile radio-telephone service, while D. G. Geiger, western area transmission engineer, Bell Telephone Co., explained the working of the system via the use of an electrically operated chart.

V V

Telegraphs Spouse To Quit Telephone

A business man tried repeatedly to reach his wife by telephone at their home in Western Springs, Ill. Each time the line was busy.

Finally, in desperation, he sent her a telegram asking her to hang up so he could talk.

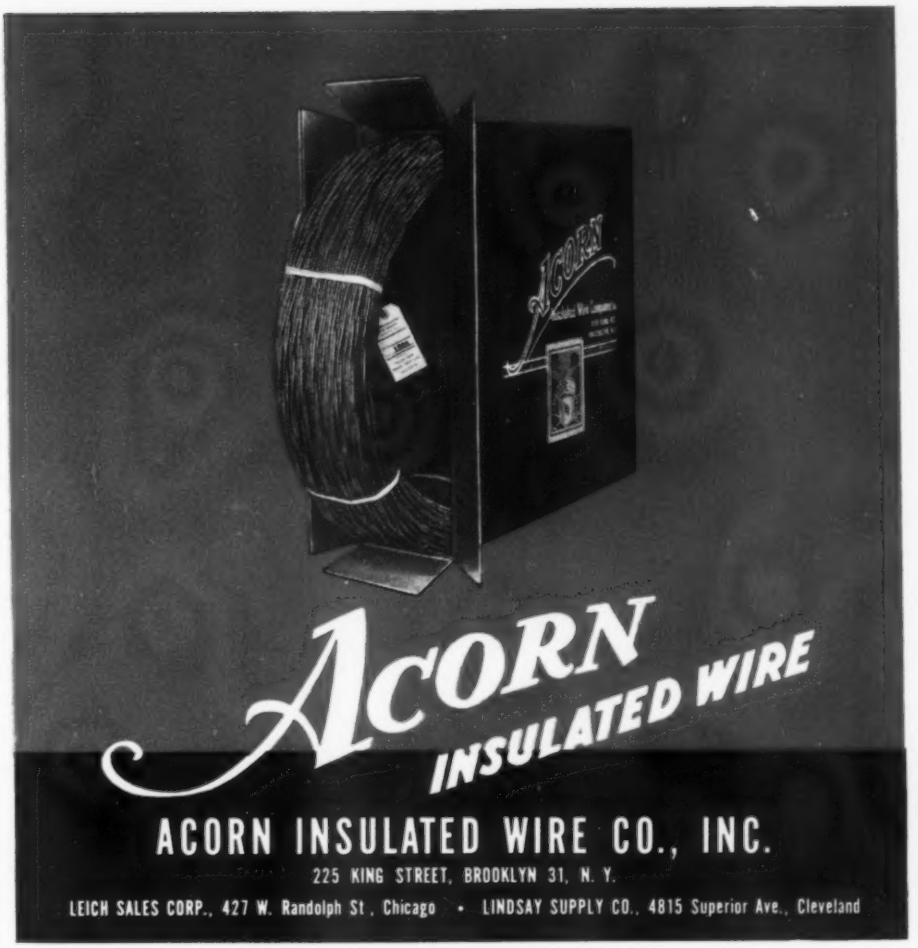
The telegraph company telephoned his message.

V V

Washington Farmers to Have Improved Telephone Service

The Kennewick (Wash.) Valley Telephone Co., purchaser of the Sunnyside Irrigation District Telephone Department which serves Benton City, Kiona and vicinity in Washington, recently announced plans to convert the old Sunnyside system to dial service at a future date and at the present time is beginning to rebuild the entire telephone system which for 30 years had served the irrigation farmers in that area.

The company has 98 subscribers.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Eliminate High Resistance Joints by Using Kearney Splicing Machines and Sleeves
By the application of a tremendous pressure, uniformly applied over the entire length of the splicing sleeve, Kearney Splicing Machines provide a splice that exceeds the breaking strength of the conductor.
The job is done quickly and neatly with these well balanced, easy-to-use splicing machines. They are made to extremely close tolerances, from highest quality materials to assure long life. For the best possible job always use Kearney Sleeves with Kearney Splicing Machines.
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MODEL 2451

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CHANCE CABLE CARS

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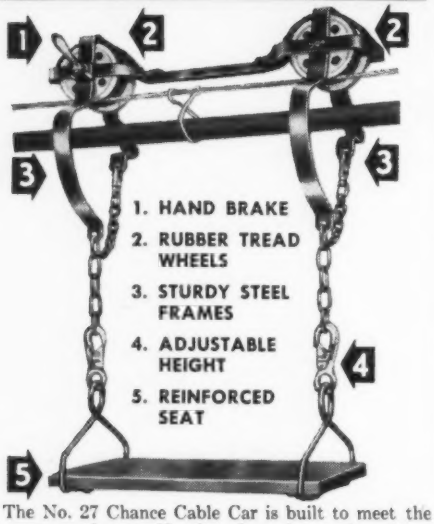

The No. 27 Chance Cable Car is built to meet the most exacting specifications for safety and performance. The hand brake stops the car and holds it anywhere on the messenger. Lightweight Aluminum rubber cored wheels ride smoothly over hundreds of thousands of rings without appreciable wear. Sturdily constructed steel frame and reinforced seat will last a lifetime—seat is easily detached and adjustable in height for comfort and convenience.

Chance Cable Cars were used by the Armed Forces. They are built to give you the same exceptional service. For more information, write today.

A·B·CHANCE CO. • CENTRALIA MISSOURI

AT&T Proposes Sale Of Debentures

The American Telephone & Telegraph Co., New York, N. Y., on Feb. 26 filed with the Securities & Exchange Commission a registration statement covering the proposed issuance and sale of $200,000,000 35-year debentures due Apr. 1, 1982.

Net proceeds from the sale would be used to provide its subsidiary and associated companies with funds for extensions, additions and improvements to their plants; for extensions, additions and improvements to its own plant, and for general corporate purposes.

The company intends to invite sealed bids for the purchase of the new issue as a whole, to be received by 11:30 a.m., Mar. 25, at the company offices, 195 Broadway, New York City. The coupon rate will be determined by the successful bid.

V V

Buses Use Two-Way Radio-Telephones

The Great Lakes Greyhound Lines, Inc., has installed two-way radio-telephone equipment on its intercity buses in southern Michigan, it was reported recently.

Transmitting and receiving service will be vastly improved soon with the construction and automatic operation of a frequency modulated short wave radio tower which the Federal Communications Commission has authorized the company to build in Kalamazoo with similar towers in other cities in southern Michigan and northern Indiana, J. Adrian Mertaugh, Kalamazoo terminal manager, stated.

Drivers on the Indian Trails run between Flint and Chicago by way of Kalamazoo already are using the radio-telephone apparatus to great advantage. Installation of the equipment in coaches on other routes is planned for the near future.

V V

Georgia to Use Telephones In Fire Fighting

Georgia's fight against forest fires received a boost Jan. 27 when the Georgia Power Co. offered use of its extensive "high-line" telephone facilities to aid in reporting fires.

J. M. Tinker, forestry director, said the offer was made in a letter to him from J. M. Oliver, vice president in charge of operations of the power company, who described the "high-lines" as private telephone circuits which are strung along electric transmission lines for use in the direction of company operations. Mr. Oliver said there are 1,943 miles of "high-lines" interconnecting 170 offices, substations and power plants in 141 Georgia counties.

In accepting use of these facilities, Mr. Tinker said they will be "invaluable" once a state-wide system of forest fire protection has been authorized by the legislature.

"This network of telephones," he said, "will supplement the basic network of telephone, teletype and telegraph facilities already planned as a warning service by the department of forestry. We will soon have a foolproof warning system which will make the existence of a forest fire without our knowledge an impossibility as soon as the state-wide forest fire protection plan is made a reality."

this, Mister,

is an Easter seal

It's only a small piece of crinkly edged paper with a back that's mighty sticky when it gets wet . . .

Maybe it doesn't look like much, but I know a lot of kids who see plenty in this little Easter seal . . .

They see wheel chairs and crutches to help them get out and do things—

They see a school, and others see a ride to school . . .

Lots of them see camp . . . camp in the summer, good hot sunshine, real trees, acres of sweet-smelling green grass, and swimming, playing . . . like other kids . . .

But don't get me wrong, mister—they don't really *see* all this. These kids just dream it, because that's what they can have with the dollars you spend for Easter seals . . .

Gosh, mister, it's wonderful of you to give us a chance to be like other kids!

BUY AND USE

EASTER SEALS

West Virginia Company Plans Service Improvements

The Webster Springs (W. Va.) Telephone Co. has announced a fourfold plan to improve and expand its service to more adequately serve the territory in which it operates.

The company (1) has purchased office equipment for its Webster Springs exchange which will double its present size; (2) plans to build toll circuits from Webster Springs to its Walkerville, W. Va., exchange which will lighten the toll load now carried on its present lines; (3) plans to construct lines to serve a new coal area near Jerryville, and has ordered new dial equipment for its Cowen, W. Va., exchange.

V V

Maine Operator Enables 35 to Escape Fire

Mrs. Walter Dodge, a telephone operator, was nearly overcome by smoke giving warning that enabled 35 guests and employes to escape uninjured from a fire that destroyed the Plymouth Hotel, Fort Fairfield, Me., Feb. 16.

Mrs. Dodge used the hotel switchboard until the flames put it out of commission. Then she groped her way through smoke-filled corridors to make sure that everybody was aroused.

Mrs. Dodge, who is 45 years old, said she went to the two upper floors after the board went dead.

"I hollered and rapped at the doors of the rooms I knew to be occupied," she said. "Then I was overcome by smoke and fell, but got up and found my way to a stairway. Downstairs again, I locked the safe, scooped all the money out of the cash register and got out myself—with just the dress I had on."

V V

Northbrook, Ill., Fire Department Uses Radio-Telephone

The Northbrook (Ill.) Fire Department has installed a two-way radiotelephone on its main apparatus which is believed to be the first installation of its kind on standard fire fighting equipment, it was reported recently.

Chief Lowell Miller said the radiotelephone enables firemen to receive and make calls while enroute to fires or at the scene. It cuts time and effort previously lost by receipt of improper instructions, and also enables the firemen to call for additional help when needed.

The chief isn't satisfied with just having a radio-telephone, though. The latest device his department is adopting is a telephone system whereby the volunteer firemen who man his trucks all can be reached by pushing one button, which rings the telephones in their respective homes at the same time.

V V

Real Estate Salesman Uses Radio-Telephone

W. H. Lee, salesman for the Miami, Fla., office of the Keyes Co., Florida realtors, now keeps in touch with his office and home by radio-telephone installed in his car.

W. H. LEE

Mr. Lee is the first real estate salesman in the country to have this new facility for keeping in touch with his customers, it was reported.

A great user of the telephone, Mr. Lee also has a dictaphone recording attachment on his office telephone so that his telephone conversations may be recorded.

V V

Board of War Communications Abolished by President

The Board of War Communications went out of business Feb. 25, by executive order of President Truman.

The board came into being soon after Pearl Harbor with full power over all forms of American communications. It was perhaps best known to the general public for its priority system on long distance telephone calls and its order abolishing the singing telegram.

V V

Tillar (Ark.) Telephone Company Sold

Purchase of the Tillar (Ark.) Telephone Co. by Mr. and Mrs. J. B. Thomas of Pangburn, Ark., was announced recently by Mrs. A. L. Hays, former owner and operator.

Mrs. Hays has been owner of the Tillar company for the past 10 years.

V V

Illinois Bell Directors

JOHN L. MCCAFFREY and WILLIAM V. KAHLER were elected directors of the Illinois Bell Telephone Co. at its recent annual stockholders' meeting. They fill vacancies caused by the death of Sydney G. McAllister and the retirement of William O. Kurtz. Mc. McCaffrey is president of the International Harvester Co. and Mr. Kahler is vice president of the Illinois Bell company.

V V

University Honors Leeds & Northrup President

Charles S. Redding, president of Leeds & Northrup Co., Philadelphia, Pa., manufacturers of electrical measuring instruments and heat treating furnaces, received the honorary degree of doctor of science at the midwinter commencement exercises of the University of Pennsylvania on Feb. 15.

C. S. REDDING

The degree was presented by Dr. George William McClelland, president of the university, from which Mr. Redding was graduated in 1906 and subsequently served for two years as a member of the faculty. Mr. Redding, an associate trustee of the university, succeeded Morris E. Leeds, now chairman of the board, as president of Leeds & Northrup Co. in 1939.

V V

Automatic Electric Honored By Chinese Government

A message of appreciation for assistance to the Chinese government in training selected Chinese youths in telephone work has been received by Automatic Electric Co., Chicago. The message was in the form of a letter from Chiang Kai-Shek, president of China, and was accepted for the company from Dr. V. K. Wellington Koo, Chinese ambassador to the United States, by J. W. Shipman, vice president.

The occasion was a recent dinner ceremony, given at the University Club of New York City by the China Institute in America, at which a number of

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International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Wood Products Co., American Bank Bldg., Portland, Ore.—Creosoted Douglas Fir, Larch, and Lodgepole Pine Poles.

American firms were so honored. Dr. Koo personally made the presentation to an executive representative of each American firm participating.

V V

Awarded Medal

HAROLD J. W. FAY, head of the submarine signal division of the Raytheon Manufacturing Co., Boston, Mass., has been awarded the Longstreth Medal of the Franklin Institute for 1947, for leadership in the development of supersonic detection devices contributing to the anti-submarine campaign in World War II.

V V

AT&T Announces Seven Jewett Fellowships

The American Telephone & Telegraph Co., New York, N. Y., announced recently the award of seven Frank B. Jewett Fellowships for research in the physical sciences. The awards carry an annual stipend of $3,000 to the holder and $1,500 to the institution at which the recipient elects to do research.

Winners of the year's awards are Dr. M. G. Ettlinger, California Institute of Technology, also a 1946 fellow; Wallace D. Hayes, same institute; Paul Olum, Harvard University; Aadne Ore, Yale University; Dr. Alfred Schild, Carnegie Institute of Technology; Dr. Robert L. Scott, University of California, holder of a 1946 fellowship, and Edwin H. Spanier, University of Michigan.

V V

Converts to Dial

The Heins Telephone Co., Sanford, N. C., has announced plans for converting the telephone systems at Sanford and Jonesboro to dial operation. The conversions are scheduled to be completed within a few months.

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